EDUCATION, TRAINING AND UNEMPLOYMENT IN NORTHERN IRELAND: AN EMPIRICAL ANALYSIS OF OUTCOMES AND POLICIES

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TABLE OF CONTENTS

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DECLARATION

A number of academic papers and official reports associated with the research presented in this thesis, have either been published or are due to be published soon. The background to these publications is discussed in more detail in Chapter 1.

The academic papers which have been accepted for publication are as follows:

Armstrong, D. M. (1998, forthcoming) 'Measuring the Extent of Unemployment and Inactivity Amongst Young People: An Empirical Analysis for Northern Ireland', *Work, Employment and Society*.

_____ (1998, forthcoming) 'School Performance and Staying-On: A Micro Analysis for Northern Ireland', *The Manchester School*.

_____ (1998, forthcoming) 'Careers Guidance, Psychometric Testing and Unemployment Amongst Young People: An Empirical Analysis for Northern Ireland', *Applied Economics*.

The official reports which have been published or are forthcoming are as follows:

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_____ (1997) *Staying on in Full-Time Education in Northern Ireland: An Economic Analysis*, Department of Education for Northern Ireland (DENI), DENI Research Series No 7, Bangor.

_____ and Cooper, C. and Hallmark, A. (1998, forthcoming) *A Review of the Use of Psychometric Testing in Careers Guidance*, a report prepared for the Training and Employment Agency by the Northern Ireland Economic Research Centre and Queens University Belfast, Belfast.

_____ (1998, forthcoming) *The Success of Young People in Further Education and Vocational Training*, Department of Education for Northern Ireland (DENI), DENI Research Series, Bangor.

_____ (1997) 'Hidden Labour Reserves in Northern Ireland', in *Labour Market Bulletin*, No 11, Training and Employment Agency, Belfast.

SUMMARY

This thesis contains four main analytical chapters. The first three examine some specific issues relating to the school-to-work transition in Northern Ireland. These are based on an econometric analysis of microeconomic survey data, containing work-history and family background information on a single cohort of young people aged 16-18. The main findings of these chapters are as follows: firstly, decisions about destinations post-16 are significantly influenced by factors relating to the school attended by the young people up to the age of 16. In particular, young people from schools which perform well, in terms of overall examination performance and attendance rates, are more likely to remain in full-time education, *ceteris paribus*. This can be interpreted in terms of aspects of 'school culture' such as the attitudes and aspirations of pupils and teachers, which have received considerable attention in the educational literature. Secondly, psychometric tests which are used as part of the careers guidance process do not significantly affect young people's experiences of unemployment post-16. Qualitative evidence suggests that this can be attributed to some aspects of test administration in Northern Ireland, such as blanket testing and feedback on test results, which in many cases fall short of recommended guidelines. Thirdly, the majority of young people in Northern Ireland who leave school at age 16 enter Further Education (FE) colleges or vocational training schemes such as the Youth Training Programme (YTP). The choice between these two activities does not significantly influence young peoples chances of gaining additional qualifications between the ages of 16 and 18. Rather, there are factors common to both, such as lack of entry level qualifications, which have a more significant influence.

The fourth analytical chapter examines the nature and extent of hidden unemployment amongst adult males in Northern Ireland. The analysis in this chapter is non-econometric and is based mainly on a descriptive analysis of data from the 1991 Census of Population and the Labour Force Survey. The research found that there are a large number of jobless people who can be considered to be unemployed, but who do not appear in official unemployment figures. The majority (around two thirds) of these are registered as long-term sick, and the remainder are on government employment or training programmes, or unemployed teenagers who are not eligible to claim benefits.

CHAPTER 1

INTRODUCTION

1.1 THE CONTEXT

It is widely recognised that the education and labour market experiences of young people between the ages of 16 and 19 have an important influence over their subsequent success in the labour market as adults. If young people manage to make the transition from school to work successfully, then they are much more likely to fare well in later life. Alternatively, if they have negative experiences of the labour market at this stage, such as long spells of unemployment or failure to complete vocational training, then this is likely to have a lasting impact on their subsequent labour market prospects.

There has, to date, been a relatively small amount of socioeconomic research on youth transitions in Northern Ireland, particularly compared to England, Scotland and Wales. This is, perhaps, surprising since adult unemployment in Northern Ireland has traditionally been higher than in any other UK region. This thesis attempts to redress this imbalance, by investigating some key issues relating to the factors which influence the relative success of young people moving from school to work in Northern Ireland.

Although the focus of the thesis is on the school-to-work transition in Northern Ireland, there are a number of reasons why the analysis may be of interest to a wider audience. Firstly, although there are some differences, there are many similarities between Northern Ireland and elsewhere in the UK, in terms of the nature of education and training institutions. This means that some of the lessons learned for Northern Ireland are likely to be relevant, albeit to varying degrees, to other parts of the UK. Secondly, in the wider academic literature a number of specific debates have taken place during the past decade, and some of these have remained unresolved. For example, the results of the existing literature are unclear about the nature of the

relationship between local unemployment and educational participation rates amongst young people. Therefore, there is some scope for the analysis for Northern Ireland to provide additional evidence on some of these debates and, perhaps, to help move them towards a firmer conclusion. Thirdly, it is the case that some of the topics investigated in this thesis have been relatively under-researched in the wider academic literature. For example, it will be shown below that there is very little up-to-date evidence, based on multivariate techniques, relating to the effects of different forms of careers guidance on young people's labour market outcomes. This is interesting because the provision of impartial guidance for young people is, as shown below, increasingly being advocated by academics and policy makers, particularly since transition paths for young people have recently become more and more complicated. Therefore, some of the analysis presented below represents one of the few attempts in the recent literature to investigate such issues and, given the paucity of information for elsewhere in Great Britain, the Northern Ireland evidence might have direct implications for the broader research and policy community.

The nature and extent of unemployment and inactivity amongst teenagers in the UK has received considerable attention in the youth transitions literature. Important methodological issues arise in this area, mainly because official information on unemployed teenagers is very limited. Similar issues have been addressed in a number of studies of 'hidden' or 'disguised' unemployment amongst adults. Such studies have examined the extent to which official unemployment statistics mis-represent the true extent of joblessness, mainly because they exclude large groups of people who are classified as economically inactive, e.g. 'discouraged workers' and those registered as long-term sick. This issue has provoked a lively debate recently, both in the academic literature and in the national press. Indeed, it has become particularly important since the introduction of the Jobseekers Allowance in 1996, one effect of which has been to remove large numbers of people from the official unemployment claimant count. Therefore, although the main body of the thesis is concerned with issues relating to youth transitions, an investigation is also conducted of the nature and extent of hidden unemployment amongst adult males in Northern Ireland.

1.2 OUTLINE OF THE THESIS

The outline of the thesis is as follows: the present chapter is intended to provide a basic introduction to the main issues and an overview of the overall structure of the thesis. Chapter 2 introduces some key features of education, training and unemployment in Northern Ireland in order to provide some background material for the main chapters. Chapter 3 describes the microeconomic survey data which are used in much of the analysis, and discusses the main issues relating to sampling, representativeness and weighting. The following four chapters (Chapters 4-7) are the main analytical chapters. Each of these examines a specific issue or a range of issues relating to either youth transitions (Chapters 4, 5 and 6) or hidden unemployment (Chapter 7). Chapters 4, 5 and 6 are all based on an econometric analysis of the survey data described in Chapter 3. Chapter 7 investigates the nature and extent of 'hidden unemployment' amongst adult males in Northern Ireland. It contrasts with the other chapters in that it does not relate specifically to the youth labour market, and it is not based on econometric analysis. Chapter 8 concludes with a review of the main findings, a brief discussion of some broad themes emerging from the analysis, and a number of suggestions for further relevant research.

1.3 BROAD STRUCTURE OF MAIN CHAPTERS

Each of the four main analytical chapters (Chapters 4-7) shares a common structure which generally consists of seven sections, namely (1) Introduction, (2) Background, (3) Literature Review, (4) Data, (5) Econometric Methodology, (6) Results, (7) Conclusions[1]. Having this broad format means that each of the main chapters is essentially self-contained, i.e. once the reader is familiar with the survey database (described in Chapter 3), each of the analytical chapters (Chapters 4 - 7) can be read as a self-contained unit; the issues are introduced and investigated, the results

[1] Note that Chapter 7, which is not based on econometric analysis of microeconomic data, does not contain separate sections on econometric methodology and data.

presented, and the policy implications discussed all within the chapter concerned. Although the main purpose of each of these sub-sections should be self explanatory, some of their basic features are outlined in Box 1.1. Two points are worth further discussion: firstly, with respect to the literature reviewed in each of the chapters, it became clear during the course of the research that for the particular topics being investigated, some of the more interesting and relevant studies appeared in the non-economics literature (e.g. sociology and psychology). This is not uncommon amongst applied microeconomists. For example, in the centenary volume of the *Economic Journal*, both Malinvaud (1991) and Stiglitz (1991) argued that, particularly when modelling individual behaviour, economics has much to learn from other disciplines. Secondly, in terms of the econometric modelling, care has been taken to estimate the most technically robust models. Many of these have accounted explicitly for the important issue of sample selection bias which has received considerable attention in the applied economics literature. All of the models were estimated using the LIMDEP econometric software package (see Greene, 1995) and most, but not all, of the particular models required were already programmed into the LIMDEP software. Although the focus of the analysis will be on the econometric results, care is also taken to present the results in simpler, more conventional formats, e.g. simple crosstabulations of dependent and explanatory variables, and simple 'single equation' econometric models which do not control explicitly for the sample selection problem. This was done in order to check that the results derived from the more complex econometric models were consistent with those derived from more simple forms of analysis. It was felt that this was important because the focus of this thesis is not on the econometric techniques *per se*, but rather on using them as a tool with which to address specific policy questions. On this point it is worth noting that some amongst the current generation of labour economists have been accused of 'techniques fetishism', i.e. a concern with the mastering of techniques as opposed the understanding of economic issues (Freeman, 1989). The main focus of this thesis is on the issues and not the techniques. Presenting a range of alternative econometric and non-econometric results is one reflection of this overall approach.

BOX 1.1: AN OVERVIEW OF THE MAIN CHARACTERISTICS OF THE CHAPTER SUB-SECTIONS

Background
Discusses the broad policy background to the issue being investigated, introduces the reader to any relevant information or particular issues which relate specifically to Northern Ireland, and introduces any concepts and/or terminology which may not be immediately familiar to an economic readership.

Literature Review
Provides a critical overview of the relevant literature. 'Relevance' is mainly defined in terms of existing empirical literature which deals with the same, or similar, issues. Given the nature of the topics being investigated, a wide range of literature is surveyed and, in some cases, non-economics literature is reviewed in detail. For example, many interesting studies of the labour market impact of careers guidance amongst young people, the subject of Chapter 5, appear in the psychology literature. Likewise, important studies of the factors which influence post-compulsory educational participation, the subject of Chapter 4, are found in both the education and the sociology literature.

Data
Although the main features of the micro dataset are discussed in Chapter 3, Chapters 4 - 6 each contain a separate section on data. This section discusses some of the specific features of the data which are relevant for the particular issue being investigated in the chapter. For example, in Chapter 5, which investigates the effect of psychometric testing on youth unemployment, this sub-section discusses the separate survey which was conducted in order to obtain information relating to whether or not the young people sat the tests. Similarly in Chapter 6, which examines value added in further education and vocational training, this sub-section discusses the way in which a variety of vocational qualifications were re-coded into the equivalent of NVQ levels. In each chapter, this sub-section also contains some basic summary statistics for the main variables used in the econometric analysis.

Econometric Methodology
Sets out technical details relating to the econometric methodology employed in the analysis. All of the econometric analysis is based on individual level survey data, and so a variety of micro models are used such as Probit, Bivariate Probit and Ordered Probit. The discussion focuses on (a) why the particular models are chosen, (b) examples of other studies which have used such models, (c) how the models are derived - mainly in terms of specifying the Likelihood functions, and (d) and the derivation and meaning of marginal effects. The relevant theoretical or applied econometric literature is cited throughout.

Results
This section contains the main results of the analysis. The main focus is on the econometric results, but in most cases basic cross-tabular type information is also presented.

1.4 BACKGROUND TO RESEARCH AND EXISTING PUBLICATIONS

Much of the analysis presented in the thesis has arisen out of particular research projects, commissioned by Government in Northern Ireland, and conducted by the author at the Northern Ireland Economic Research Centre (NIERC). This means that some of the analysis is based on work previously published, or else forthcoming, in the form of reports for Government departments in Northern Ireland. For example Chapter 4, which examines the factors which influence participation in full-time education, is based on a report commissioned and published by the Department of Education for Northern Ireland (see Box 1.2 for details). Similarly Chapter 5, which investigates the impact of psychometric testing on youth unemployment, is based on research conducted by the author in collaboration with colleagues at the Queens University Belfast, commissioned by the Training and Employment Agency (Box 1.2). Given this background, much of the analysis is firmly grounded in specific policy questions which have been of concern to government officials in Northern Ireland. These reports are all available from the relevant government departments.[2] It is also worth noting that some academic papers based on each of the main chapters have been accepted for publication in academic journals. For example, papers based on the analysis presented in Chapters 4 and 5 have been accepted for publication in *The Manchester School* and *Applied Economics* respectively (Box 1.2). All of these papers are available as NIERC Working Papers.

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[2] Training and Employment Agency, 39-49 Adelaide Street, Belfast, BT2 8FD. Department of Education for Northern Ireland, Rathgael House, Balloo Road, Bangor, Co. Down, BT19 7PR.

BOX 1.2: PREVIOUS PUBLICATIONS BASED ON THESIS RESEARCH

Chapter 2

Armstrong D. M. and Blackaby, D.H. (1998, forthcoming) 'Regional Labour Markets and Institutions in the UK', in Laan, L. and Ruesga, S. M. (eds), *Regional Labour Markets and Institutions in Europe*, Avebury, Aldershot.

Chapter 3

Armstrong D. M. (1997, ed) *'Status 0': A Socioeconomic Study of Young People on the Margin*, a report prepared by the Northern Ireland Economic Research Centre and the University of Ulster on behalf of the Training and Employment Agency, Belfast.

_____ (1998, forthcoming) 'Measuring the Extent of Unemployment and Inactivity Amongst Young People: An Empirical Analysis for Northern Ireland', *Work, Employment and Society*, NIERC Working Paper No 22.

Chapter 4

_____ (1997) *Staying on in Full-Time Education in Northern Ireland: An Economic Analysis*, Department of Education for Northern Ireland (DENI) Research Series No. 7 DENI, Bangor.

_____ (1998, forthcoming) 'School Performance and Staying-On: A Micro Analysis for Northern Ireland', *The Manchester School*, NIERC Working Paper No 24.

Chapter 5

_____ and Cooper, C. and Hallmark, A. (1998, forthcoming) *A Review of the Use of Psychometric Testing in Careers Guidance*, a report prepared for the Training and Employment Agency by the Northern Ireland Economic Research Centre and Queens University Belfast, Belfast.

_____ (1998, forthcoming) 'Careers Guidance, Psychometric Testing and Unemployment Amongst Young People: An Empirical Analysis for Northern Ireland', *Applied Economics*, Vol 30, NIERC Working Paper No 25.

Chapter 6

_____ (1998, forthcoming) *The Success of Young People in Further Education and Vocational Training*, Department of Education for Northern Ireland (DENI), DENI Research Series, Bangor.

Chapter 7

_____ (1997) 'Hidden Labour Reserves in Northern Ireland', in *Labour Market Bulletin*, No 11, Training and Employment Agency, Belfast.

_____(1997) 'Hidden Male Unemployment in Northern Ireland', NIERC Working Paper No 29

CHAPTER 2

AN OVERVIEW OF EDUCATION, TRAINING AND UNEMPLOYMENT IN NORTHERN IRELAND

2.1 INTRODUCTION

The main purpose of this chapter is to introduce some key features of education, training and unemployment in Northern Ireland, as a way of providing some background material for the analysis presented elsewhere in the thesis. The chapter does not provide an extensive overview as this has been done elsewhere (see, for example, Osborne et al., 1993b and House of Commons, 1997 for overviews of education and training in Northern Ireland, and Armstrong, 1994a and Gudgin, 1996 for overviews of the labour market). Rather, the main focus is on some key features of education and labour market institutions and outcomes in Northern Ireland which the reader may not be familiar with, and which have important implications for the nature of the analysis conducted in subsequent chapters.

2.2 POST-PRIMARY SCHOOLING IN NORTHERN IRELAND

2.2.1 Selection by Ability

In Northern Ireland, selection takes place at age 11, at which time members of the cohort are divided into those who attend grammar schools, and those who attend non-grammar schools, comprising mostly of 'secondary' schools. In 1994/95 there were approximately 156,000 pupils in post-primary schools in Northern Ireland, of whom around three fifths (61 per cent) were in non-grammar schools (Table 2.1). There has been a lively debate about the role of selection in the Northern Ireland schooling system. A good review of the existing evidence is given in Hillman (1994). Those in favour argue that the selective system contributes to average school standards in Northern Ireland being higher than elsewhere in the UK where a more comprehensive system is used. Those against argue, amongst other things, that it has perpetuated a two-tier system which results in only a minority of young people (i.e. those at

grammar schools) performing relatively well. There are also fears that the selective system has contributed to Northern Ireland having a greater problem than the rest of the UK in terms of a higher status being placed on academic, as opposed to vocational pathways. This was raised in the Dearing Report as an important problem with education and training throughout the UK (Dearing, 1994). The debate about the relative merits of selection in Northern Ireland continues (see, for example, House of Commons, 1997 for recent statements of the various positions). In terms of this thesis, selection by ability is important, firstly, because it is one of the main ways in which the school system in Northern Ireland differs from elsewhere in the UK. In Scotland and Wales, for example, nearly all post-primary schools are comprehensive (i.e. they cater for children of all abilities). In England, although there are some selective grammar schools and some independent schools which can select a proportion of their pupils, the scale of selection is by no means comparable to Northern Ireland (see Raffe et al., 1997 for a good discussion of regional differences in education and training institutions in the UK). Secondly, it is important to understand the role of selection in Northern Ireland, mainly because it results in two broad, and very distinct streams of young people progressing through education and training into the labour market. Those in the grammar stream generally follow a traditional academic route, staying on at school after the age of 16, and subsequently entering some form of higher education. Transition paths for those in the secondary stream, however, are more varied; they generally consist of some form of further education or vocational training between the ages of 16 and 18, with a subsequent move into employment (or unemployment) at the age of 18. Although there is much pride in Northern Ireland in the grammar sector, much of this thesis is concerned with young people in the secondary sector, since it is amongst such young people that the problems of low educational attainment and youth unemployment etc., mainly lie.

Table 2.1: Schools and Pupils in Post-Primary Schooling in Northern Ireland: 1995-96

	Number of Schools (1995/96)	Number of Pupils (1995/96)
Grammar	71	61,150
Secondary	156	87,643
Integrated	9	2,783
Special	47	4,648
All	*283*	*156,224*

Source: *Northern Ireland Annual Abstract of Statistics*, 1997, Statistics and Research Agency

Notes: Figures exclude a small number of independent schools. Integrated schools cater for young people from both communities in Northern Ireland (see Section 2.2.2 below)

2.2.2 Segregation by Religion

Secondary schooling in Northern Ireland is largely, but not exclusively, segregated by religion. Although there are some schools in England, Wales and Scotland which have a religious affiliation, the extent of religious segregation is much greater in Northern Ireland than elsewhere in the UK. In recent years Government in Northern Ireland has encouraged the establishment of so-called 'integrated' schools, catering for both communities, mainly through preferential funding arrangements. However, the process of change is slow and the number of pupils at such schools remains small (see Table 2.1 above). This means that a largely segregated system remains the likely state of affairs in Northern Ireland for the foreseeable future.[3] Most of the discussion which has taken place about religious segregation in Northern Ireland schools has focused on the extent to which, if at all, it has helped to foster adverse community relations, thereby contributing to political instability (see Osborne et al., 1993b for an overview). In terms of this thesis it is important to be aware of religious segregation in schooling in Northern Ireland, firstly, because it is one of the key ways in which Northern Ireland schools differ from their counterparts in Great Britain and, secondly,

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[3] Given this, the most important efforts within the education system towards integration of the two communities has been in terms of curriculum developments. For example, following the Education Reform (NI) Order in 1989, all schools in Northern Ireland are required to teach two cross-curricular themes in the Common Curriculum, namely 'Education for Mutual Understanding' and 'Cultural Heritage'. The main purpose of these is to improve the quality of mutual understanding amongst young people from the two main traditions. In addition, schools have also been encouraged, although not required, to promote so-called 'contact' activities which allow pupils from the different traditions to meet and engage in discussions, workshops and other activities (see Gallagher et al., 1993 for a discussion).

because religion, as discussed below, is strongly correlated with labour market outcomes amongst both young people and adults.

2.3 EDUCATION, TRAINING AND UNEMPLOYMENT POST-16

2.3.1 Qualifications of School Leavers

Standards of secondary education in Northern Ireland compare favourably to other parts of the UK, particularly England and Wales, with a higher proportion of young people achieving good A level results (Table 2.2). Throughout the 1980s, standards amongst those who left school at age 16 were poor in Northern Ireland, with a relatively high proportion leaving school with no formal qualifications (see Appendix 2A below). However, significant improvements have taken place in recent years, and Northern Ireland now has a smaller proportion of young people leaving school with no formal qualifications, as well as a larger proportion leaving with 'good' GCSEs and A Levels, than elsewhere in the UK (Table 2.2).

The reasons underlying these improvements in Northern Ireland relative to elsewhere in the UK have been discussed in House of Commons (1997). Two main reasons can be given: firstly, since the mid 1980s an increasing proportion of pupils at secondary schools in Northern Ireland have been entered for GCSE examinations. Prior to this time it was for formal examinations, largely because of a disparity between the school leaving regulations and the time formal examinations were sat. Correcting this disparity meant that an increasing number of young people stayed at school a little longer, making it more likely that they would sit formal examinations, and get some qualifications. Secondly, a wide range of government initiatives have been introduced in Northern Ireland in recent years, aimed specifically at combating underachievement in secondary schools. Amongst the most important of these have been the Raising Schools Standards Initiative and Targeting Social Need programme. A detailed review of these and other such programmes was presented in House of Commons (1997). The main conclusion was:

> '*whilst there is a lot which can be done to improve performance all the evidence shows that intelligent effort on the part of all the elements in the education system has radically improved performance*' (House of Commons, 1997, p xxiv)

Table 2.2: Examination Results of School Pupils in the UK: 1994

	Achieved 5+ GCSEs Grades A-C	Achieved No Formal Qualifications	Achieved 2+ A Levels Grades A-E
	Per cent of 16 Year Olds		Per cent of 18 Year Olds
Northern Ireland	49	5	30
England	43	8	19
Wales	39	10	20
Scotland	48	8	30
United Kingdom	44	8	21

Source *Regional Trends*, 1996, Central Statistical Office

Notes For Scotland, A Level figures relate to the achievement of 3 or more Highers, and are expressed as a per cent of 17 year olds , because Highers are usually taken one year before A Levels

Although young people at Northern Ireland schools generally perform better than their counterparts elsewhere in the UK, it can be argued that, for a number of reasons, significant improvements still need to be made: firstly, many of Northern Ireland's well educated young people end up moving to Great Britain and elsewhere to take up employment or higher education places. For example, in the early 1990s around two fifths of Northern Ireland domiciled higher education entrants attended institutions in Great Britain, and around four fifths of these got their first job outside Northern Ireland (DENI, 1994a). A review of the Northern Ireland evidence on the characteristics of migrants is given in Appendix 2B. This represents an important drain on Northern Ireland's educational investment. Secondly, aggregate figures for Northern Ireland tend to mask the major differences which exist between grammar and secondary schools. The vast majority of pupils who attend grammar schools reach the equivalent of A level standard. This is in contrast to secondary school pupils, most of whom struggle to achieve 5 or more GCSEs at grades A-C (Table 2.3). This high degree of underachievement in the secondary sector is one of the reasons why, as outlined above, much of the analysis presented below focuses on secondary school pupils.

Table 2.3: The Qualifications of Grammar and Secondary School Leavers in Northern Ireland: 1994

Highest Level of Qualifications Obtained	Grammar School Leavers	Secondary School Leavers
	per cent of leavers	
1+ A Levels	78	8
5+ GCSEs (A-C)	15	16
Other	8	76
All	*100*	*100*

Source: Department of Education for Northern Ireland

Notes: Figures exclude special and independent schools. '5+ GCSEs (A-C)' includes Grade 1 CSE and GNVQ Intermediate qualifications. 'Other' includes those with GCSEs at grades D-G, those with other qualifications such as BTEC and City and Guilds, and those with no formal qualifications.

Thirdly, although the comparison between Northern Ireland and the rest of the UK is interesting, it is not necessarily the most helpful one to make. The main reason is that there is now a growing body of research evidence to suggest that standards of education throughout the UK are significantly lower than in many other industrialised countries. Some of the most important research in this area has been conducted by the National Institute of Economic and Social Research in London since the mid-1980s (see Prais, 1995 for a good overview of the main findings from this body of research). More recently, the UK Government's *Skills Audit* has confirmed these findings and has found, for example, that standards of secondary education in the UK are significantly lower than in France and Germany (Table 2.4).

Table 2.4: Standards of Secondary Education in Northern Ireland, the United Kingdom, France and Germany: 1994 (per cent of 19-21 year olds)

	Northern Ireland	United Kingdom	France	Germany
'Lower Secondary' Level (equivalent to GCSEs A-C in Maths, national language & one other subject)	59	58	78	66
'Upper Secondary' Level (equivalent to 2+ A levels)	41	37	42	51

Source: *The Skills Audit*, 1996, Department for Education and Employment

Notes: 'Lower secondary' level is defined as (a) GCSE grades A-C in the national language, Maths and one other subject, (b) an Intermediate GNVQ, or (c) an NVQ level 2 or vocational qualification (e.g. BTEC, City & Guilds, RSA) at the equivalent level. 'Upper secondary' level is defined as (a) 2 or more A level passes, (b) an Advanced GNVQ, or (c) an NVQ level 3 or equivalent vocational qualification.

2.3.2 Immediate Post-16 Activities

As in the rest of the UK, young people approaching the end of compulsory schooling in Northern Ireland can either stay on in full-time education at school or an FE

college, enter a vocational training scheme or get a job. Those who fail to do one of these, end up unemployed or economically inactive. There is, surprisingly, relatively little comparative information on how post-16 destinations amongst young people compare in the different parts of the UK. The main reason is that the standard micro surveys of young people which provide this information are conducted independently in the different parts of the UK. For example, England and Wales have the Youth Cohort Study, Scotland has the Scottish Young People's Survey and Northern Ireland has had the Secondary Education Leavers Survey and the Status 0 Survey.[4]

Although dated, one of the most reliable and consistent sources of information currently available is the 1991 Census of Population (see Table 2.5). In terms of unemployment, the Census shows unemployment rates amongst 16 and 17 year olds in Northern Ireland to be lower than elsewhere in the UK. This is somewhat surprising since, as shown below, unemployment rates amongst adults remain higher than elsewhere in the UK. It is important to note, however, that education and training institutions in Northern Ireland seem to be better able to retain young people between the crucial ages of 16 and 18. In particular, the figures also show that participation rates in full-time education (i.e. at school or FE) are significantly higher for 16-18 year olds in Northern Ireland compared to other parts of the UK. Similarly, the proportion of young people in *emp*loyment is also lower in Northern Ireland, with the differences for 16 and 17 year olds being particularly marked. This suggests, therefore, that the lower teenage unemployment in Northern Ireland is not a reflection of a buoyant youth labour market; rather, it reflects the fact that in an area of high adult unemployment such as Northern Ireland, young people are encouraged to stay on in full-time education and training, in order to postpone labour market entry. These links between local labour demand and educational participation are investigated in more detail in Chapter 4 below.

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[4] Note that significant progress is currently being made in terms of reconciling the information from these different sources, in the so-called 'Home Internationals' research project, which is being funded by the Economic and Social Research Council, and conducted by researchers at the Centre for Educational Sociology in Edinburgh (see, for example, Raffe et al., 1997).

Table 2.5: Educational and Economic Activities of 16 - 18 Year Olds in the United Kingdom in 1991 (per cent of age cohort)

	Northern Ireland	England	Scotland	Wales
	16 Year Olds			
Full-Time Education	82.0	69.2	58.1	72.1
Vocational Training	6.7	4.8	9.9	6.3
Employment	5.7	19.1	23.4	14.0
Unemployment/Other	5.7	6.9	8.6	7.5
All	*100.0 (n=25,000)*	*100.0 (n=580,000)*	*100.0 (n=64,000)*	*100.0 (n=36,000)*
	17 Year Olds			
Full-Time Education	57.2	40.7	34.0	44.1
Vocational Training	14.6	9.7	12.9	13.9
Employment	19.4	38.8	41.7	31.4
Unemployment/Other	8.9	10.7	11.4	10.6
All	*100.0 (n=26,000)*	*100.0 (n=596,000)*	*100.0 (n=65,000)*	*100.0 (n=37,000)*
	18 Year Olds			
Full-Time Education	44.8	29.0	24.2	30.5
Vocational Training	6.9	5.5	6.1	8.3
Employment	33.1	50.0	52.9	44.2
Unemployment/Other	15.3	15.5	16.9	17.0
All	*100.0 (n=26,000)*	*100.0 (n=629,000)*	*100.0 (n=68,000)*	*100.0 (n=38,000)*

Source: 1991 Census of Population Report for Great Britain Part 1, and Economic Activity report for Northern Ireland.

Notes: Full-Time Education is the group defined as 'Students' in the 1991 Census and includes those at school, Further Education college and 6th form colleges. There are no sixth form colleges in Northern Ireland. Vocational Training relates to those on Government schemes. The 'Other' category is relatively small but includes others inactive, e.g. the permanently sick, and those involved in full-time family duties. 'n' refers to the size of the population age cohort, rounded to the nearest thousand.

2.4 AGGREGATE UNEMPLOYMENT IN NORTHERN IRELAND

2.4.1 Northern Ireland as a 'Peripheral' Region of the UK

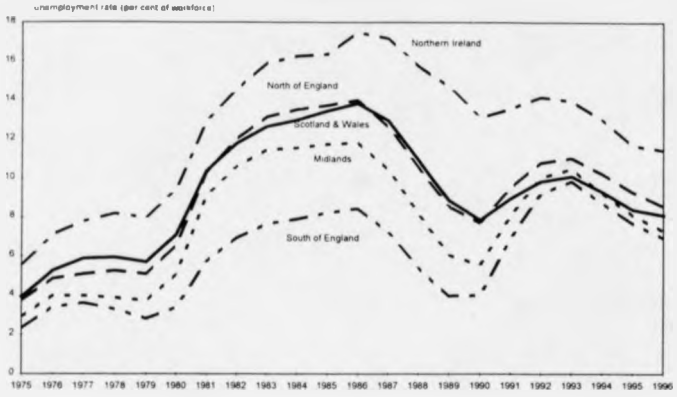
The 'North-South' Divide

Traditionally, economic prosperity in the so-called 'peripheral' regions of the UK has been significantly lower than in the southern and more central regions, and this has been reflected in regional differences in unemployment rates. For example, in 1990 unemployment in the North of England, Scotland and Northern Ireland was more than 8 per cent of the workforce, whereas in the southern regions of East Anglia, the South West and the Rest of the South East it was less than 4 per cent (Figure 2.1). Between the mid-1970s and the mid-1980s, the differences in unemployment between the northern and southern regions increased as aggregate unemployment rose steeply (Figure 2.2). A lively academic debate ensued, which dominated much of UK regional economic analysis, about the reasons underlying the existence and persistence of this so-called 'North-South divide' (see, for example, Gudgin and Schofield, 1993, and Blackaby and Manning, 1990).

Figure 2.1: Unemployment in the Standard Planning Regions of the United Kingdom (April 1990)

Source: National On-line Manpower Information System

Figure 2.2: Unemployment in the Broad Regions of the United Kingdom (1975-96)



Source: National On-line Manpower Information System

Notes: Figures are seasonally adjusted annual averages. The broad regions are defined as follows: South of England = South East, East Anglia, South West; North of England = North, North West, Yorkshire and Humberside, Midlands = East Midlands and West Midlands

Regional Convergence in the 1990s

During the most recent recession of 1990-93, which was more broadly based than that of the early 1980s, these traditional differences in regional unemployment practically disappeared. Between 1990 and 1993, for example, unemployment increased proportionately by more than 150 per cent in most of the southern counties, whereas in the 'peripheral' regions of Scotland and Northern Ireland it increased by less than 50 per cent (Figure 2.3). There is widespread agreement that this can be attributed mainly to factors relating to the financial and housing markets (see Muellbauer and Murphy, 1991 for a discussion at a national level, and Gudgin and O'Shea, 1993 for a discussion relating specifically to Northern Ireland). It is too early to judge with certainty, however, whether the traditional picture of regional unemployment has been altered permanently. On balance, recent studies have suggested that there is likely to be some re-emergence of traditional disparities (see, for example Martin, 1993 and Swales and Gudgin, 1996).

Figure 2.3: Unemployment Change in the Counties of the United Kingdom (1990-1993)

Source: National On-line Manpower Information System
Note The figures show the proportionate change in unemployment rates between April 1990 and April 1993.

'Hidden Unemployment'

Figures such as those presented above, which show that regional unemployment rates in the UK have converged, tend to be based on the official 'claimant count' measure of unemployment. A number of studies have argued recently that in many cases such official measures do not reflect the true extent of joblessness, mainly because they exclude large numbers of jobless people who are variously classified as economically inactive, e.g. 'discouraged workers', the early retired and the long-term sick. This is important because it suggests that the apparent convergence in regional unemployment rates may reflect, at least in part, the limitations of official information on unemployment, as opposed to a genuine convergence in regional labour market conditions. For example, Beatty and Fothergill (1996) argue that much of the convergence in unemployment rates between the North and South of England can be accounted for mainly by regional differences in labour force participation. Unemployment rose in prosperous regions because labour supply had grown and employment changed little, whereas in depressed regions it rose less because employment falls were largely offset by labour force withdrawals. Such factors have become particularly important since the introduction of the Jobseekers Allowance in

1996, one effect of which has been, on account of changes in eligibility criteria, to remove large numbers of people from the unemployed claimant register. The extent to which official figures mis-represent the true extent of joblessness in Northern Ireland is investigated in Chapter 7 below.

2.4.2 Geography, Religion and Unemployment

Although Northern Ireland is a relatively small geographical area, it contains some quite large spatial differences in unemployment. For example, in the eastern area of Ballymena, unemployment rates are relatively low, similar to those in many counties of southern England. In contrast, there are other areas in which unemployment rates have been consistently higher than most other parts of the UK, for example, the urban areas of Belfast and Derry and western areas such as Strabane and Omagh (Figure 2.4). Related to this, unemployment is also significantly higher amongst Catholics compared to non-Catholics. For example, amongst adult males, Catholic unemployment rates have tended to be around twice as high as those for non-Catholics (Table 2.6). The unemployment differential between Catholics and Protestants has persisted throughout the 1970s and 1980s and it has provoked a lively debate amongst academics and policy makers. The debate has tended to concentrate on the relative merits of the various explanations for the differential (an excellent review of the issues is given in Whyte, 1991). Perhaps the most obvious explanation is that Catholics are discriminated against in the Northern Ireland labour market, either directly or indirectly. However, a number of alternative explanations are possible. Until recently, most of these have been based around the premise that Catholics and Protestants differ in terms of certain individual, household and socio-economic characteristics, and these characteristics have an important influence on unemployment. For example, Catholics are more likely to be in lower socio-economic groups and they tend to have fewer qualifications, and such people are generally more likely to be unemployed. Detailed microeconometric research, based on Labour Force Survey data, has shown that around one half of the differential can be explained in terms of these and other such 'structural' factors; the remainder, therefore, can be explained in terms of the 'direct' effect of religion on

unemployment (Smith and Chambers, 1991 and Murphy and Armstrong, 1994).[5] Such studies have interpreted this religion effect in terms of some form of direct or indirect discrimination. However, such conclusions are based on the premise that all of the relevant factors which affect unemployment are observed, and can be adequately represented in microeconometric models. A recent study has questioned such conclusions, and argued that microeconometric models can only tell part of the story with respect to discrimination. In particular, Gudgin and Breen (1996) have argued that time series simulation models are required to account for the additional effects of religious differences in labour force growth and migration propensities. When this is done, it is found that discrimination can explain only a small amount, if any, of the religious unemployment differential. This study has, quite naturally, provoked a lively debate in the Northern Irish press (e.g. Irish News, 1997a and 1997b), and the Irish academic literature (e.g. Bradley, 1997). The debate continues.

In terms of this thesis, the existence of religious differences in adult unemployment is interesting, mainly because it suggests that when modelling youth transitions in Northern Ireland, it is important to include dummies for religious background as explanatory variables. This is the approach which has been adopted below. The rationale behind doing this is similar to the now standard inclusion of dummy variables for ethnic background, in studies of youth transitions in Great Britain (e.g. Andrews, Bradley and Upward, 1997 and Leslie and Drinkwater, 1996).

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[5] Note that these microeconometric studies for Northern Ireland are similar in terms of aims and methods, to those conducted recently in GB which focus on ethnic differences in unemployment (e.g. Blackaby et al., 1997).

Figure 2.4: Unemployment Rates in Northern Ireland Local Government Districts: October 1993

Source: Department of Economic Development (NI)
Notes: Figures are claimant-based, they relate to males aged 16 and over and are expressed as a per cent of the workforce

Table 2.6: Unemployment and Religion in Northern Ireland: 1971-1994

	Male			Female		
	Catholic	Protestant	Ratio	Catholic	Protestant	Ratio
1971 Census	17	7	2.4	7	4	1.8
1991 Census	28	13	2.2	15	8	1.9
1991 Labour Force Survey	23	9	2.6	11	6	1.8
1994 Labour Force Survey	22	11	2.0	8	5	1.6

Source: 1971 and 1991 Census Economic Activity Reports and 1994 Labour Force Survey Religion Report (NISRA, 1996)
Notes: The 'Ratio' figures give the Catholic unemployment rate divided by the corresponding rate for Protestants. LFS figures are based on the ILO definition of unemployment whereas Census figures are based on a slightly broader definition. This is the main reason why unemployment figures for 1991 are higher according to the Census than the LFS. Note that the Census figures relate to the post-16 population (post-15 in the case of 1971), whereas the LFS figures relate to the working age population. 'Protestant' includes all non-Catholic denominations.

2.5 CONCLUSION

Northern Ireland is a small region on the periphery of the UK and the rest of Europe. As in other peripheral regions, unemployment rates have tended to be well above the UK average. Although there are some signs that Northern Ireland unemployment may be converging towards the UK average, research in GB suggests that much of this reflects the limitations of official information on unemployment, as opposed to any real convergence in regional labour market conditions. One aim of this thesis is to investigate the extent to which this is also the case in Northern Ireland. A broader aim, however, is to investigate what factors help young people make a successful transition from school to work. This is important because a key part of any long-term solution to adult unemployment will involve ensuring that young people have positive experiences of education and the labour market up to the age of 18. The vast majority of young people who attend Northern Ireland's grammar schools perform well in school examinations, and proceed successfully into higher education or employment. Many of these leave Northern Ireland to study or work in Great Britain, the Republic of Ireland or elsewhere. In terms of economic development, therefore, it is essential to ensure that those who remain in Northern Ireland reach an adequate standard of education. Most of these will have attended secondary (i.e. non-grammar) schools. It is amongst such young people that the main problems of underachievement, marginalisation and lack of labour market success lie. It is for this reason that much of the analysis presented below concentrates on such young people.

APPENDIX 2A: SCHOOL LEAVERS WITH NO FORMAL QUALIFICATIONS IN THE UK

It was shown above that Northern Ireland now has a lower proportion of young people leaving school with no or low levels of qualifications than in other parts of the UK (Table 2.2). The figures below show that this is a relatively new phenomenon, and that during the 1980s the proportion of school leavers with no formal qualifications was considerably higher in Northern Ireland than elsewhere in the UK.

The Proportion of School Leavers with No Formal Qualifications: 1981-89

	Males		Females	
	1981/82	1988/89	1981/82	1988/89
Northern Ireland	33.1	23.7	22.7	13.8
England	12.0	9.1	9.2	6.7
Wales	21.4	16.0	16.3	11.0
Scotland	30.0	13.7	26.0	9.9

Source: *Regional Trends*. 1984, 1985, 1991, Central Statistical Office

Notes: Figures are expressed as a percentage of all school leavers and relate to young people who left school with no GCSE passes (A-G). Note that these figures are not directly comparable to those in Table 2.2 since they relate to school leavers as opposed to age cohorts (as in Table 2.2)

APPENDIX 2B: EDUCATIONAL ATTAINMENT OF NORTHERN IRELAND MIGRANTS

Three groups of studies lend support to the idea that better educated people are more likely than others to migrate from Northern Ireland. The studies, along with their main findings are as follows:

Compton and Power (1991), Compton (1992, 1995)
These studies surveyed people who visited Northern Ireland during the New Year period in 1988 and 1991. The people were contacted when they were leaving after the New Year holiday and returning to Great Britain and elsewhere. The interviews were carried out at the four ports of embarkation from Northern Ireland, namely Aldergrove Airport, Belfast City Airport, Larne ferry terminal and Belfast harbour terminal. Information was collected on the characteristics of those who were leaving as well as their attitudes towards future migration intentions. It was found that nearly six out of every ten respondents were educated to at least A Level standard, and this led to the conclusions that, 'notwithstanding the problem of representativeness, the dominance of individuals possessing good academic qualifications and occupying professional and managerial positions is so overwhelming within the sample as to suggest that Northern Ireland is indeed suffering a 'brain drain' and that most of its most talented people now leave the province permanently.' (Compton and Power, 1991, p6)

Forsythe and Booroah (1992)
This study used data from the Labour Force Survey to compare the characteristics of three different groups of people; firstly, those who migrated from Northern Ireland to Great Britain, secondly, those who migrated from Great Britain to Northern Ireland and, thirdly, those living in Northern Ireland who did not migrate. In addition to the levels of education amongst these groups, the study also compared characteristics such as economic status, age, sex and occupation. One of the basic findings of the study was that those who migrated both into and out of Northern Ireland tended to be significantly better educated than those living in Northern Ireland who did not migrate. It should be noted, however, that an important finding of the study was that quite a large proportion of those who migrated to or from Northern Ireland had little or no qualifications. This was interpreted as showing that, at least in times of national economic recovery, the pattern of migration is bi-modal with both the well qualified and the badly qualified migrating in large numbers.

Cormack and Osborne (1993)
These studies give the results of a long-term research project into the characteristics and experiences of Northern Ireland higher education entrants and graduates. The study surveyed young people from Northern Ireland who entered higher education institutions in 1973, 1979, 1985 and 1991. The surveys were conducted by means of a postal questionnaire and included universities and polytechnics both inside and outside Northern Ireland. There are three main findings which are relevant for the present paper. Firstly, it was found that a large proportion of young people who studied A Levels in Northern Ireland attended higher education institutions in Great Britain or elsewhere; for example, amongst 1985 new entrants to higher education,

about two fifths of both males and females left Northern Ireland to study elsewhere. Secondly, it was found that quite a high proportion of students who graduated from one of the two universities in Northern Ireland, subsequently left Northern Ireland to live and work elsewhere. Thirdly, three out of the four studies have found that students who performed better at A Level were more likely to study outside Northern Ireland. It was the most recent survey, of those who entered higher education in 1991, which found that this was not the case. It will be interesting to see whether or not this pattern continues.

CHAPTER 3

DATA: THE 'STATUS 0 SURVEY'

3.1 INTRODUCTION

As outlined above, Chapters 4 - 6 are based on an econometric analysis of microeconomic data taken from a survey of young people in Northern Ireland. This survey, originally referred to as the 'Status 0 Survey', was conducted in June 1995 as part of a major research project into unemployment and inactivity amongst teenagers in Northern Ireland. The full results of the original research project are given in Armstrong (1997c).[6] The survey contains detailed background and work history information on the activities of a cohort of young people in Northern Ireland between the Summer of 1993, when they first became eligible to leave school, and the Summer of 1995. The sample was drawn from the records of the Careers Service, which is part of the Northern Ireland Training and Employment Agency (T&EA). The main purpose of this chapter is to describe the Survey, to discuss the main issues relating to sampling, representativeness and weighting, and to set out some of the basic features of the data.[7]

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[6] The term 'Status 0' was used in the original research to refer to young people not in education, training or employment, i.e. young people in unemployment or inactivity. It was borrowed from a study of youth unemployment in South Glamorgan (see Rees et al., 1995). It has also been adopted in some national press articles relating to youth unemployment and inactivity, e.g. 'The Status 0 Generation', *The Daily Telegraph*, 13 October 1995.

[7] It is worth re-iterating at this stage that Chapters 4 - 6 each contain a separate sub-section on data which discusses some features of the data which are particularly relevant for the specific issue being investigated in the chapter. For example, Chapter 5, which examines the impact of psychometric testing on youth unemployment, discusses a separate follow-up survey which was used to gather the information on the extent of psychometric testing amongst the young people in the original survey. Likewise, Chapter 6, which investigates the qualifications obtained in further education and vocational training, discuses how different vocational qualifications were coded into the equivalent of NVQ levels. The present chapter focuses on broader issues relating to sampling and representativeness, as well as some of the more general characteristics of the data, such as information on school qualifications and individual and family background characteristics.

3.2 THE SAMPLE

3.2.1 The Sampling Frame: The T&EA Careers Service Records

Each year the T&EA gathers information on the educational and economic activities of 5th formers shortly after they first became eligible to leave school (i.e. on the first Monday in October each year). It is used to provide a summary of the educational and economic activities of young people in Northern Ireland after compulsory schooling, i.e. the proportion of 5th formers who choose to stay on at school, enter employment or full-time training etc. This information is published each year (see, for example, T&EA, 1993 and 1995). In the school year 1992/93 there were 24,068 young people in the final year of compulsory schooling in Northern Ireland, and a breakdown of their educational and economic activities is shown in Table 3.1.

Table 3.1: Post-16 Educational and Economic Activities: 1993

	Number	Per cent
School - grammar	7022	29
School - secondary/other	4238	18
FE college	5151	21
YTP/Jobskills	5493	23
Employment	880	4
Unemployment	641	3
Other	142	1
Unknown	501	2
All	*24,068*	*100*

Source: Training and Employment Agency

Notes: Figures relate to the activities of young people, as recorded by the Careers Service, on the first Monday of October 1993.

The information used to construct these figures is provided by Careers Officers in each of the 31 local T&EA offices throughout Northern Ireland. Every year Careers Officers from the local offices visit each of the schools in their areas and conduct face-to-face interviews with 5th form pupils. The main purpose of the interviews is to help the young people make informed choices about education, training and employment options post-16. In Northern Ireland, the main focus of the work of the Careers Service has been on secondary (i.e. non-grammar) school pupils. The vast majority of secondary school pupils (around 90 per cent) have at least one interview with a Careers Officer during their 5th form, compared to a much smaller proportion (around one third) of grammar school pupils. Individual records are held by Careers

Officers for all 5th formers who have an interview, i.e. the individual record is created as a result of the interview. The records contain a range of information relating to each of the young people; for example, personal details (e.g. name, address, National Insurance number etc), the results of GCSE examinations (for the Northern Ireland board only), a short note of separate contacts with Careers Officers, their preferred careers choices and their post-16 destinations. The sample for the survey was taken from these individual records.

3.2.2 The Two Stage Sampling Procedure

The sample for the survey was collected in two stages. In the first stage, staff in each of the local offices of the T&EA were asked to provide a systematic random sample of one in every six individual records held. In particular, they were asked to provide the name, address, telephone number (where available), school attended and post-16 destination. This stage of the sampling procedure gave a sample of 3,067 young people, and a breakdown of their educational and economic activities is shown in Table 3.2 below.

In the second stage, approximately 1,500 records were selected from the stage 1 sample of 3,067. This sample size was chosen because it was large enough to ensure that, under plausible assumptions about response rates, the achieved sample would be large enough to yield statistically reliable results. However, in order to achieve sufficiently large cell sizes amongst all of the destinations, a decision was taken to regroup the young people according to their initial post-16 destinations, and to apply differential sampling fractions. All of those in the stage 1 sample whose original destinations were 'unemployment', 'other' or 'unknown' (a total of 153) were included in the stage 2 sample. This was done because such young people were the focus of the original research project, and surveys such as the Youth Cohort Study in England and Wales have shown response rates amongst such young people to be relatively low (e.g. Courtenay, 1988).

Table 3.2: Sample Numbers in Stages 1 and 2 of the Sampling Procedure

	Stage 1 Sample	Stage 2 Sample
School	1032	255
FE college	850	534
YTP	883	425
Employment	149	125
Unemployment/Other	113	113
Unknown	40	40
All	*3067*	*1492*

Source: Northern Ireland Economic Research Centre

Notes: The proportions in each of the activities for the Stage 1 sample differ from the corresponding population proportions presented in Table 3.1 above. The main reasons for this are discussed in section 3.3 below.

3.2.3 The Interviews

The survey was conducted by means of face-to-face interviews which took place at the homes of the young people concerned. This was done as an additional way of overcoming the main problems associated with postal surveys of young people, in particular, high rates of non-response amongst less well educated young people. The fieldwork for the survey was conducted by interviewers from Research and Evaluation Services, an independent organisation not associated in any way with government in Northern Ireland, or the T&EA in particular. This was done partly in an attempt to ensure that the information provided by the young people was reliable. In particular, there was a fear that if the fieldwork were to have been conducted by the T&EA or an associated government department, then this may have provided some of the young people with an incentive to misrepresent their activities.

The interviews focused on two main kinds of information: firstly, detailed information on the educational and economic activities of the young people over the period 1993, (when they first became eligible to leave school) and the summer of 1995 (when they were contacted by the interviewers). Information was collected, including the starting date and finishing date, on all spells of educational and economic activity which lasted for two weeks or more. This ensured that 'dynamic' aspects of labour market outcomes could be examined such as, for example, flows into and out of unemployment and the duration of unemployment spells. Secondly, detailed information was collected on the individual, household and background characteristics of the young people such as, for example, gender, religion, parents' employment status and last school attended. This is important because all such

variables are used as 'controls' in the econometric analysis presented below. It is also the case that many of these variables have important independent effects on different aspects of youth transitions, and investigating the nature and strength of such effects provides an important motivation for the present study.

3.2.4 Response Rates

The overall response rate was 65.7 per cent giving a total of 980 respondents (Table 3.3). This is comparable to the response rates similar surveys of young people conducted in Great Britain. For example, in England and Wales the sixth and seventh cohorts of the Youth Cohort Study, conducted in 1992 and 1994 respectively, had response rates of 69 and 66 per cent respectively (DfEE, 1996b). Response rates varied considerably according to the economic activity of the young person immediately after compulsory schooling. As expected, they were generally higher amongst those who stayed on in full-time education or training after fifth form, and lower for those who were employed, unemployed or inactive. The overall response rate for those in the unemployment / other / unknown categories was 49 per cent (75 divided by 153); this was made up of a response rate of 51.3 per cent for those who were in the Unemployment/Other categories and 42.5 per cent for those who were in the Unknown category. The lower response rate for those in the Unknown category was expected because when Careers Officers were gathering information on post-16 destinations in October 1993, it had not been possible for them to ascertain their economic activity either (a) by making contact with the young people themselves, or (b) through administrative records on young people in education, training or employment. For this reason, it was expected that they would be the most difficult group to contact by the interviewers in June 1995. Although lower than other groups of young people, the response rate amongst young people in the unemployed / other / unknown category was deemed an acceptable basis upon which the original study of youth unemployment could proceed. Indeed, it is worth noting that it was considerably larger than the 31 per cent response rate achieved amongst unemployed young people in a postal survey conducted in the Autumn of 1991 (see Armstrong, 1994b).

Table 3.3: Response Rates by Post-16 Activity

Post-16 Activity	Target	Response	Response Rate
School	255	200	78.4
FE college	534	335	62.7
YTP	425	312	73.4
Employment	125	58	46.4
Unemployment/Other	113	58	51.3
Unknown	40	17	42.5
All	*1492*	*980*	*65.7*

Source Northern Ireland Economic Research Centre

Five attempts were made to contact the young person before regarding him or her as a non-contact. The main reason for non-response, which related to more than one half of total non contacts, was that there was no reply from the young person's home after five attempts. The next most common reason, which accounted for three out of ten non-contacts, was that the young person was no longer at the address supplied. The reasons for non-response were similar for those who were in unemployment in October 1993 and other non-respondents (Table 3.4). This was encouraging in terms of broader issues relating to the the representativeness of the unemployed young people sample, discussed below.

Table 3.4: Reasons for Non-Response in the Status 0 Survey

Reason for Non-Response	All Non-Respondents		Non-Respondents who were Unemployed / Other / Unknown in October 1993	
	Number	%	Number	%
House Vacant	20	4	1	2
Not at this Address	154	30	18	28
Refused	31	6	4	6
No Reply (after 5 calls)	266	52	34	52
Made Appointment and Was not In	41	8	8	12
All	*512*	*100*	*65*	*100*

Source Northern Ireland Economic Research Centre

Notes The figures for those in the unemployed/other/unknown groups exclude 13 young people for whom no reason was given

3.3 MISSING CAREERS SERVICE RECORDS

3.3.1 The Overall Extent of Missing Records

It was outlined above that individual records were held by the Careers Service for most, but not all young people. Since the sample was drawn from these individual records, it is important to investigate in more detail the extent of missing individual records, and which young people they represent. One of the main reasons for this is that if it were to be found, for example, that missing records were particularly common amongst certain types of young people, then this would reduce the representativeness of the achieved sample. This would then have to be accounted for in the weighting factors applied to the final sample. In light of the two-stage sampling procedure, outlined above, perhaps the most obvious way of assessing the nature and extent of missing records is to use the information from the random one-in-six sample which was collected during the first stage of the sampling procedure. As outlined above, the first stage gave a total of 3,067 records. Since this was a one-in-six random sample, this implies that the population from which it was drawn consisted of around 18,500 individual records. This means that approximately 5,500 individual records (24,000 minus 18,500) were missing; this represents slightly less than one quarter of the full population (24 per cent).

Estimates of how these missing records are distributed between young people in the different forms of economic and educational activities can be obtained by examining the numbers in the Stage 1 sample in each of the activities (Table 3.5). When this is done it is found that most (around four fifths) of the missing records can be accounted for in terms of grammar school pupils who stayed on in full-time education. The remainder were divided between pupils from other schools who stayed on at school (8 per cent), those in the 'Unknown' category (5 per cent), on YTP (3 per cent), Unemployment (2 per cent) and FE college (1 per cent). An alternative way of representing the extent of missing records is to express the estimated number of missing records in each form of activity as a percentage of the total number in that activity. This is shown in the final column of Table 3.5. The figures show that,

proportionately, missing records were particularly high amongst grammar school pupils who stayed on (66 per cent of records missing), and those in the Unknown category (54 per cent of records missing).

Table 3.5: The Extent of Missing Careers Service Records

	Popln	Stage 1 Sample	Estimated Individual Records[1]	Estimated Missing Records[2]	Estimated Missing Records (% of all missing records)	Estimated Missing Records (% of total records in each category)[3]
School (grammar)	7022	401	2406	4616	81	66
School (secondary)	4238	631	3786	452	8	11
FE college	5151	850	5100	51	1	1
YTP	5493	883	5298	195	3	4
Employment	880	149	880	0	0	0
Unemployment	641	87	522	119	2	19
Unknown	501	40	240	261	5	52
Others	142	26	142	0	0	0
Total	24068	3067	18374	5694	100	24

Source: Northern Ireland Economic Research Centre and Training and Employment Agency

Notes: 1. These figures are derived by multiplying the numbers in the second column by six, with the exception that, obviously, the estimated number of individual records cannot exceed the population in any category.
2. These figures are derived by subtracting the numbers in the third column from the numbers in the first column.
3. These figures give the numbers in the fourth column as a percentage of the numbers in the first column.

3.3.2 The Reasons for Missing Records

Why, then, were records missing for young people in the two categories outlined above? With respect to the young people from grammar school who stayed on at school, the reasons are relatively straightforward. In particular, most young people in this group were expected to stay on at school after 5th form and eventually enter some form of higher education and, therefore, they were not a priority group for Careers Officers. For this reason Careers Officers did not make individual contact with these young people in their final year of schooling and, therefore, individual records were not held for them.

With respect to the missing records for young people in the 'Unknown' category, it should be noted that official figures indicate that most of these young people (around four-fifths) attended secondary schools (see Table 3.6 below). It is likely, therefore, that most of this group would have been invited to meet with a Careers Officer at some stage during their fifth form but, for some reason, the interview did not take

place. Given the results of the careful research into Careers Service records in South Glamorgan (Istance et al., 1994), one plausible reason for this might be that young people in this category were rather more marginalized than their counterparts whom the Careers Service had managed to contact. For example, the young people may not have attended the interview due to a lack of motivation, or because they did not believe government officials would be able to help them. This interpretation is confirmed by anecdotal evidence from Careers Officers in Northern Ireland, who regard those in the 'unknown' category as having fallen through the nets of mainstream provision.

Table 3.6: Population and Sample Numbers at Grammar School

	Population			Sample		
	Total	Number at Grammar School	Proportion at Grammar School	Total	Number at Grammar School	Proportion at Grammar School
School	11260	7022	62.4	200	84	42.0
FE college	5151	1125	21.8	335	38	11.3
YTP	5493	321	5.8	312	23	7.4
Employment	880	77	8.8	58	4	6.9
Unemployment /Other	783	61	7.8	58	1	1.7
Unknown	501	91	18.2	17	3	17.6
All	*24068*	*8697*	*36 1*	*980*	*153*	*15 6*

Source: Northern Ireland Economic Research Centre and Training and Employment Agency.

3.3.3 One Beneficial Implication of the Distribution of Missing Records

In Chapter 2 above it was shown that many of the most important problems of underachievement and marginalisation amongst young people in Northern Ireland relate to those who attended non-grammar schools. It was argued that this provided a strong rationale for focusing the present analysis on such young people. The high incidence of missing records amongst young people in the grammar stream, therefore, actually has one beneficial implication in terms of the present analysis. In particular, it means that the sample has included a larger number of young people from the secondary sector than would otherwise have been the case. For example, 84 percent of the final sample were at secondary/other schools compared to 64 percent in the population. This is important because it is a further factor (i.e. in addition to disproportionate stratification and face-to-face interviewing) which mitigates against the problems of non-response amongst less well educated young people. For

example, it was expected that the problems of non-response would be most acute amongst those in the unemployment and unknown categories. In spite of these prior reservations, amongst the seventeen young people in our final sample whose destination was classified as Unknown, only three had attended grammar schools. The implied proportion of 18 per cent is the same as the corresponding proportion for the population. Also interesting is that for the 58 young people in the sample who were in the Unemployed/Other category, only one had attended a grammar school; the implied proportion (2 per cent) is significantly lower than the corresponding population figure of 8 per cent. Therefore, although it was important to be aware of the problem of missing records *a priori*, the above discussion shows that the distribution of these missing records actually worked in favour of much of the analysis.

3.3.4 The Geographical Distribution of Missing Records

In terms of geographical location, the sample underrepresented young people from the Belfast area and over-represented those from the North East (Table 3.7). This is likely to be related to the distribution of missing records; in particular, there are a relatively large number of grammar schools in the Belfast area at which most pupils stay on at school post-16. Since individual records are missing for such young people, this goes some way to explaining why young people from the Belfast area are underrepresented in the raw sample. It is also worth noting that relatively low response rates for young people in the Belfast area were obtained in a recent postal survey (see Shuttleworth, 1993). This was attributed to the fact that urban areas contain relatively large numbers of less well educated and marginalised young people who are less likely to respond to postal surveys. Although the present survey was based on face-to-face interviews, it is possible that this might be an additional factor contributing to the underrepresentation of young people in Belfast.

Table 3.7: Geographical Location in the Population and Raw Sample

Area	Population %	Sample %
Belfast	18.6	13.4
Western	20.7	19.3
N Eastern	21.8	28.8
S Eastern	17.3	15.7
Southern	21.6	22.8
All	*100.0*	*100.0*

Source: Northern Ireland Economic Research Centre, Training and Employment Agency and Status 0 Survey

3.4 WEIGHTING THE SAMPLE

3.4.1 Potential Sources of Non-Representativeness

By way of summary, there were two main sources of non-representativeness in the sample: firstly, the sample was stratified by the educational and economic activities of the young people. This was done to ensure that the number of responses amongst young people who were in the unemployed / other / unknown categories was sufficiently high. The sample must be weighted, therefore, to ensure that the breakdown of educational and economic activities reflects that of the population. Secondly, the individual Careers Service records from which the initial sample was drawn excluded about 5,500 records. Most of these were for grammar school pupils who stayed on in full-time education. Generally, therefore, young people who attended grammar schools are underrepresented in the data, and this means that the type of school attended by the young person must be explicitly accounted for in the weighting procedure. Related to this, geographical location was included as an additional weighting factor, in order to ensure that the final sample was representative of young people throughout Northern Ireland.

3.4.2 Weighting Factors

The weights (w_i) for the survey are given by the population shares in each category (P_i) divided by the sample shares, (S_i), i.e:

$$w_i = P_i/S_i$$

where i refers to each of the separate categories of educational or economic activity, school type and geographical location. Since there are five activities, two school types and five geographical locations, there are a total of 50 separate categories.The population and sample numbers and shares are shown in Table 3.8 along with the weights. Since there is a relatively large number of separate categories, the sample numbers in some of the categories are sometimes small. This is particularly the case, for reasons outlined above, for young people who attended grammar schools and who stayed on at school. For some such young people, particularly those from the Belfast and South Eastern areas, the standard weights are unacceptably large, and all of them were given an average weight of 3.7 (shown in brackets in Table 3.8). This corresponds to the ratio of the population and sample shares aggregated over all geographical locations. Table 3.9 shows some basic features of the weighted and unweighted sample, along with corresponding figures for the population. The figures show that the weighted sample accurately reflects the main characteristics of the population.

Table 3.8: Population and Sample Information used to Construct Weighting Factors

			Population		Sample		Weights
Activity	Location	School Type	n	%	n	%	
School	Belfast	Grammar	1775	7.4	2	0.2	36.1 (3.7)
		Secondary	1176	4.9	25	2.6	1.9
	Western	Grammar	1396	5.8	11	1.1	5.2 (3.7)
		Secondary	775	3.2	27	2.8	1.2
	N Eastern	Grammar	1363	5.7	32	3.3	1.7 (3.7)
		Secondary	829	3.4	31	3.2	1.1
	S Eastern	Grammar	1172	4.9	1	0.1	47.7 (3.7)
		Secondary	543	2.3	17	1.7	1.3
	Southern	Grammar	1316	5.5	32	3.3	1.7 (3.7)
		Secondary	915	3.8	26	2.7	1.4
FE college	Belfast	Grammar	181	0.8	9	0.9	0.8
		Secondary	165	0.7	20	2.0	0.3
	Western	Grammar	270	1.1	3	0.3	3.7
		Secondary	783	3.3	63	6.4	0.5
	N Eastern	Grammar	326	1.4	17	1.7	0.8
		Secondary	1033	4.3	87	8.9	0.5
	S Eastern	Grammar	136	0.6	4	0.4	1.4
		Secondary	842	3.5	73	7.5	0.5
	Southern	Grammar	212	0.9	13	1.3	0.7
		Secondary	1200	5.0	90	9.2	0.5
YTP	Belfast	Grammar	43	0.2	3	0.3	0.6
		Secondary	779	3.2	44	4.5	0.7
	Western	Grammar	156	0.6	3	0.3	2.1
		Secondary	1045	4.3	41	4.2	1.0
	N Eastern	Grammar	63	0.3	5	0.5	0.5
		Secondary	1201	5.0	74	7.6	0.7
	S Eastern	Grammar	27	0.1	1	0.1	1.1
		Secondary	1048	4.4	32	3.3	1.3
	Southern	Grammar	32	0.1	5	0.5	0.3
		Secondary	1077	4.5	30	3.1	1.5
Employed	Belfast	Grammar	12	0.0	2	0.2	0.2
		Secondary	125	0.5	19	1.9	0.3
	Western	Grammar	42	0.2	0	0.0	0.0
		Secondary	163	0.7	34	3.5	0.2
	N Eastern	Grammar	8	0.0	3	0.3	0.1
		Secondary	164	0.7	26	2.7	0.3
	S Eastern	Grammar	8	0.0	1	0.1	0.3
		Secondary	139	0.6	21	2.1	0.3
	Southern	Grammar	7	0.0	5	0.5	0.1
		Secondary	211	0.9	16	1.6	0.5
Unemp / Other	Belfast	Grammar	35	0.1	1	0.1	1.4
		Secondary	196	0.8	6	0.6	1.3
	Western	Grammar	48	0.2	0	0.0	0.0
		Secondary	292	1.2	7	0.7	1.7
	N Eastern	Grammar	28	0.1	0	0.0	0.0
		Secondary	198	0.8	7	0.7	1.2
	S Eastern	Grammar	23	0.1	0	0.0	0.0
		Secondary	224	0.9	4	0.4	2.3
	Southern	Grammar	18	0.1	0	0.0	0.0
		Secondary	220	0.9	6	0.6	1.5
All			*24068*	*100*	*980*	*100.0*	*1.0*

Source: Training and Employment Agency and Status 0 Survey

Table 3.9: Population and Sample Characteristics

	Population	Sample (unweighted)	Sample (weighted)
Grammar	36.2	15.6	35.8
Secondary/Other	63.8	84.4	64.2
	100.0	100.0	100.0
Belfast	18.6	13.4	18.6
Western	20.7	19.3	20.3
N Eastern	21.8	28.8	22.2
S Eastern	17.3	15.7	17.5
Southern	21.6	22.8	21.5
	100.0	100.0	100.0
School	46.8	20.8	47.0
FE college	21.4	38.8	21.5
YTP	22.8	24.3	22.9
Employment	3.7	13.0	3.7
Unemp/Other	5.3	3.2	4.9
	100.0	100.0	100.0
School - grammar	29.2	8.0	29.3
School - other	17.6	12.9	17.6
FE college - grammar	4.7	4.7	4.8
FE college - other	16.7	34.1	16.7
YTP - grammar	1.3	1.7	1.3
YTP - other	21.5	22.6	21.5
Employment - grammar	0.3	1.1	0.2
Employment - other	3.3	11.8	3.6
Unemp/Other-grammar	0.6	0.1	0.1
Unemp/Other-other	4.7	3.1	4.7
	100.0	100.0	100.0

Source: Training and Employment Agency and Status 0 Survey

3.5 BACKGROUND CHARACTERISTICS

3.5.1 Age, Gender and Religion

The vast majority (around 95 per cent) of the young people were aged 18 at the time of the survey, and only a small number (between 2 and 3 per cent) were aged 17 and 19 respectively (Table 3.10). There was a slightly higher proportion of young men in the sample compared to young women (55 per cent men compared to 45 per cent women). Note that the sample of grammar school pupils is, as outlined above, relatively small (the total unweighted sample size was 153). This was not large enough to allow a separate analysis to be conducted for grammar school pupils. Rather, the figures presented below are based either on the pooled sample of grammar and secondary school pupils, or else the sample of secondary school pupils. This is consistent with the econometric analysis in the subsequent chapters in which separate models are estimated for grammar and secondary school pupils, secondary school pupils, but not grammar school pupils separately.

Table 3.10: Age, Gender and Religion

		Grammar and Secondary School Pupils (n=980)	Secondary School Pupils Only (n=827)
Age	17	2.0	2.0
	18	95.4	94.3
	19	2.6	3.7
		100.0	100.0
Gender	Male	54.7	54.9
	Female	45.3	45.1
		100.0	100.0
Religion	Catholic	53.7	50.3
	Non-Catholic	40.4	41.7
	of which		
	Church of Ireland	13.7	15.1
	Presbyterian	18.8	18.1
	Methodist	2.1	2.3
	Other Christian	5.2	5.8
	Other Non-Christian	0.5	-
	Non-Response	1.1	1.6
	None	4.9	6.7
		100.0	100.0

Source: Status 0 Survey

Notes: Figures are weighted. Figures for secondary school pupils include a small number who attended independent schools, special schools and FE colleges. Figures may not add up to exactly 100 per cent because of rounding. Those in the 'None' religion category include a small number in the sample who responded 'Don't know'. Those in the 'Other Christian' religion category include a small number who responded 'Other Protestant'.

Questions about religious affiliation are, for a variety of reasons, sensitive in Northern Ireland, and many official household surveys have experienced a high degree of non-response to such questions. The syntax of the question about religious affiliation in the survey was the same as that used in a number of other surveys, and is shown in Box 3.1 below.

Box 3.1: THE RELIGION QUESTION IN THE STATUS 0 SURVEY

Would you describe yourself as belonging to any particular religion? If yes, which. If no, in which religion (if any) were you brought up?

Roman Catholic	☐	Other Christian	☐
Church of Ireland	☐	Other non-Christian	☐
Presbyterian	☐	Don't Know	☐
Methodist	☐	Non-Response	☐
Other	☐	Protestant None	☐

It is worth noting, firstly, that only a very small number of young people (around 1 per cent of the sample) did not respond to the religion question (Table 3.10). This suggests that the syntax used for this question was quite successful. Secondly, very few described themselves as being of another non-Christian religion (Table 3.10). This is important because it indicates that, unlike in Great Britain, there is an extremely small ethnic minority population in Northern Ireland. Therefore, studies of ethnic differences in youth transitions such as those which have been conducted in Great Britain (e.g. Leslie and Drinkwater, 1996), cannot be conducted in Northern Ireland.

3.5.2 Family Background

As expected, the incidence of unemployment amongst the young people's parents was higher for those in the secondary school sample than for those in the pooled sample (Table 3.11). It is worth noting that there are significantly higher proportions in the 'Other' and 'Don't Know' categories for father's economic activity than for mothers activity. This can largely be explained in terms of the relatively higher proportion of young people who are living with only their mothers. For example, around three quarters of young people who indicated that they did not know about their father's

activity were living with their mother only, compared to one-tenth for the full sample. It is also important to note that the majority (81 per cent) of those whose mothers were employed full-time indicated that their fathers were also in full-time employment. This suggests that when mothers activity is used in the analytical work, it may be the case that a dummy variable for mother employed full-time may actually be a proxy for both parents employed full-time. Finally, the young people were asked to indicate how many older and younger siblings they had. This was mainly because in studies of educational participation and attainment, birth order as well as absolute family size has been shown to be an important variable (see, for example, Micklewright, 1989).

Table 3.11: Family Background

		Grammar & Secondary School Pupils (n=980)	Secondary School Pupils Only (n=827)
Father's Economic Activity	Employed Full-Time	62.5	55.0
	Employed Part-Time	1.8	1.6
	Unemployed	20.8	26.3
	Retired	3.0	3.1
	Housework	0.2	0.2
	Other	7.0	6.8
	Don't Know	4.7	7.0
		100.0	100.0
Mother's Economic Activity	Employed Full-Time	27.6	23.7
	Employed Part-Time	21.4	18.7
	Unemployed	5.0	7.6
	Retired	1.4	0.9
	Housework	40.0	44.7
	Other	2.6	2.9
	Don't Know	2.1	2.2
		100.0	100.0
Living with:	Mother and Father	82.5	78.9
	Mother Only	10.6	12.7
	Father Only	2.9	3.1
	Other Relatives	0.9	1.3
	On Own	1.4	1.6
	With Friends	0.9	1.1
	Other	0.9	1.2
		100.0	100.0
Number of Siblings	None	4.7	6.0
	1 – 2	48.2	43.4
	3 – 4	34.5	34.4
	5 +	12.6	16.3
		100.0	100.00
Number of Older Siblings	None	37.1	34.0
	1 – 2	49.2	48.1
	3 – 4	9.7	12.7
	5 +	3.9	5.2
		100.0	100.0
Number of Younger Siblings	None	30.5	33.4
	1 – 2	50.9	46.6
	3 – 4	15.7	15.9
	5 +	2.8	4.1
		100.0	100.0

Source: Status 0 Survey

Notes: Figures are weighted. Figures for secondary school pupils include a small number who attended independent schools, special schools and FE colleges. Figures may not add up to exactly 100 per cent because of rounding. If a young person had a twin, then this is included in the total number of siblings, but not the number of older or younger siblings. This applies to around 3.9 per cent of the sample (38 cases unweighted)

3.5.3 Qualifications Gained at School

Two fifths of secondary school pupils got no GCSE passes (grades A-C) at school. Grammar school pupils performed significantly better at GCSE examinations than secondary school pupils (Table 3.12). For example, the proportion of young people with no GCSE qualifications is significantly lower in the pooled sample of grammar and secondary school pupils than in the sample of secondary school pupils only (26 per cent compared to 40 per cent). These figures on the GCSE performance of young people are very close to the corresponding figures on school examination performance taken from the school performance tables, (see Chapter 4 below).

Table 3.12: Number of GCSE Passes Gained at School

Number of GCSE Passes (grades A-C)	Grammar & Secondary School Pupils (n=980)	Secondary School Pupils Only (n=827)
0	26.4	39.8
1	7.0	9.8
2	8.0	10.7
3	6.2	7.5
4	5.6	6.4
5	5.5	7.0
6	5.6	6.6
7	9.7	6.2
8	8.9	4.3
9	11.0	1.1
10+	6.2	0.7
All	100.0	100.0

Source Status 0 Survey

Notes Figures are weighted. Figures for secondary school pupils include a small number who attended independent schools, special schools and FE colleges. Figures may not add up to exactly 100 per cent because of rounding.

3.5.4 Local Unemployment Rates

The survey contained information on the geographical location of the young person's home. In particular, the database contained a variable indicating which of the 26 Local Government Districts (LGDs) in Northern Ireland in which the home was located. This information was then used to impute proxies for local labour demand in the young person's area. The proxies were based on information on male claimant unemployment. The main variable used in the analysis was the male unemployment rate in October 1993, shortly after the young people first became eligible to leave school. In addition, the unemployment rate in June 1995 was also relevant for some of the models, because this is the time the survey was conducted. Information on

female unemployment was not used because large numbers of jobless women are known to be excluded from the claimant count, and so it provides a relatively poor indicator of local labour demand. The other main indicator of local labour demand used in the analysis was a youth unemployment rate. This was calculated as the number of 18-24 year old claimants in October 1993 in each LGD (taken from the National Online Manpower Information System), divided by the total youth population of the same age in each area in 1991 (taken from the 1991 Census of Population). Other indicators such as the male long-term unemployment rate were experimented with, but were found to be insignficant in the analysis, and so are not reported below.

Dummy variables for Belfast and Derry were included in some of the analysis because official data for GB show that educational participation rates tend to be very low in many urban areas (DfEE, 1995). Qualitative research conducted for inner city areas in London suggests that much of this can be attributed to a complex web of social and economic factors which include, but go beyond the fact that unemployment rates tend to be higher in such areas (Christie and Rolfe, 1992). The urban dummy variables are used, therefore, in an attempt to disentangle the traditional unemployment effects from a range of other largely unobservable factors which might be associated with urban areas. Information on geographical location was unavailable for around 5 per cent of the sample, and for these young people, average Northern Ireland unemployment rates were imputed (Table 3.13).

Table 3.13: Alternative Indicators of Local Labour Demand

	Adult Unemp Rate Oct'93	Adult Unemp Rate June'95	Youth Unemp Rate Oct'93	Grammar and Secondary School Pupils (n=980)	Secondary School Pupils only (n=827)
Londonderry	28.4	23.4	19.0	6.9	9.1
Limavady	21.4	18.7	16.6	1.7	2.7
Coleraine	18.7	16.4	15.6	1.6	2.4
Ballymoney	16.5	14.8	10.8	1.8	1.4
Moyle	25.3	21.7	19.1	2.3	1.8
Larne	16.6	12.9	14.6	1.8	2.1
Ballymena	12.5	10.7	10.5	5.8	2.8
Magherafelt	19.6	16.8	14.0	4.9	3.9
Cookstown	21.0	17.2	15.5	3.0	3.2
Strabane	28.3	22.7	17.1	2.5	1.5
Omagh	21.1	17.8	17.6	6.0	2.3
Fermanagh	19.8	18.5	14.3	2.4	3.2
Dungannon	21.0	17.6	15.9	5.9	3.0
Craigavon	14.7	11.6	11.1	3.2	2.1
Armagh	17.0	14.7	12.9	1.8	2.8
Newry & Mourne	25.0	22.0	16.1	9.0	7.3
Banbridge	10.2	7.5	10.2	3.6	3.1
Down	14.9	13.7	15.5	2.3	3.5
Lisburn	13.4	11.1	11.9	4.9	7.0
Antrim	12.7	10.3	11.9	3.3	1.9
Newtownabbey	12.8	10.5	12.7	3.1	3.9
Carrickfergus	13.8	11.0	12.8	0.6	1.0
North Down	10.0	9.6	12.0	0.9	0.9
Newtownards	11.4	9.7	10.3	1.7	2.2
Castlereagh	11.4	8.8	11.4	3.4	4.1
Belfast	28.2	23.4	22.8	10.5	15.0
Geography Unknown	19.7	16.6	15.4	5.3	5.7
Northern Ireland	19.7	16.6	15.4	100.0	100.0

Source: Status 0 Survey and Department of Economic Development

Notes: Figures are weighted. Figures for secondary school pupils include a small number who attended independent schools, special schools and FE colleges. Figures may not add up to exactly 100 per cent because of rounding. The adult unemployment rates are claimant-based for males. The youth unemployment rate gives the total number of 18-24 year old claimants divided by the 18-24 year old population in 1991.

3.6 A DYNAMIC PICTURE OF YOUTH UNEMPLOYMENT: 1993-95

3.6.1 Monthly Snapshots

As outlined above, the survey also contained information on educational and economic activities over the period 1993-95. Some of the analysis presented below investigates a range of factors which influence the experience of unemployment amongst these young people over the period 1993-95. At this stage, therefore, it is worth setting out what the data suggested about the nature of the unemployment experience amongst teenagers in Northern Ireland. The proportion of young people in unemployment increased over the period October 1993 - June 1995, although the increase did not appear to be particularly large, especially during the first year.[8] For example, the proportion increased from 5.2 per cent in October 1993 to 7 per cent in June 1994 (an absolute increase of 1.8 percentage points and a proportionate increase of 35 per cent). It is also interesting that there do not appear to be large outflows from vocational training schemes during the first year after compulsory schooling. Generally speaking, therefore, these figures suggest that the profile of educational and labour market activities for young people in Northern Ireland is reasonably stable in the first two years following compulsory education, particularly in the first year.

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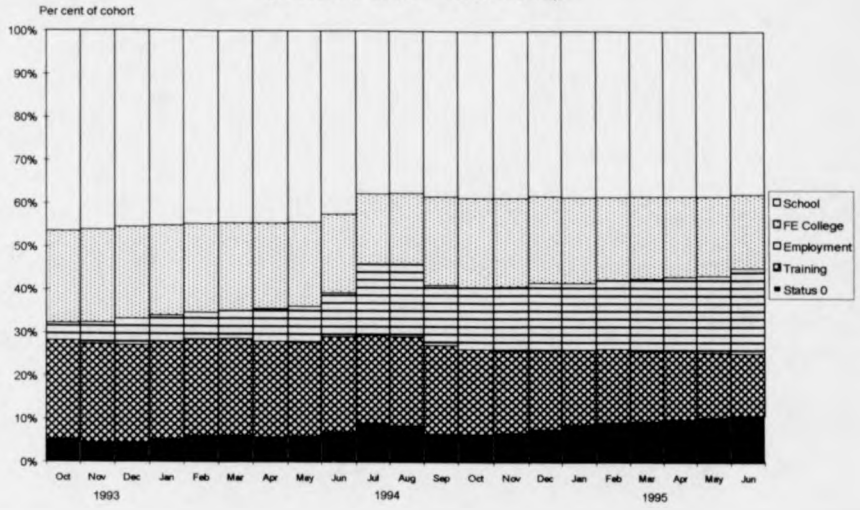
[8] Note that throughout this analysis, spells of unemployment and inactivity which were experienced only in the summer months of July and August are excluded.

Figure 3.1: Educational and Economic Activities (October 1993 - June 1995)

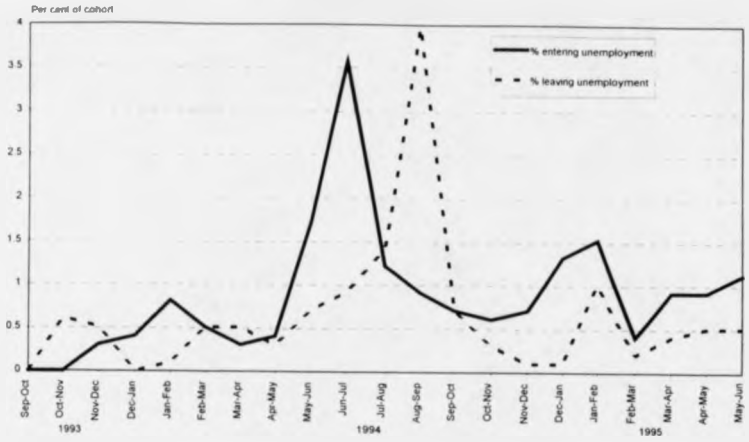


Source: Status 0 Survey
Notes: Status 0 refers to unemployment. Spells of unemployment experienced only in the Summer months of July and August are excluded.

3.6.2 Inflows and Outflows

Underlying the picture presented in Figure 3.1 above is a dynamic situation in which some young people enter unemployment every month, some leave and others remain there. In order to confirm whether or not the young people's activities are stable as suggested in Figure 3.1, it is necessary to look explicitly at these dynamics. This is done in Figure 3.2, in terms of a set of monthly inflow and outflow rates. For all of the months outside of the summer holiday period, both inflow and outflow rates tend to be very small. For example, during any one month between September 1993 and May 1994 less than one per cent of the full cohort entered unemployment. The figures also show that inflows are generally larger than outflows. Again this is consistent with the slight upward trend in the overall proportion of young people in unemployment, shown in Figure 3.1.

Figure 3.2: The Proportion of Young People Entering and Leaving Unemployment



Source Status 0 Survey
Note Spells of unemployment experienced only in the Summer months of July and August are excluded
Figures give the number entering or leaving unemployment as a proportion of the total cohort

3.6.3 The Number and Duration of Spells

These figures on inflows and outflows are also consistent with figures on the number of separate spells of unemployment experienced by the young people. Slightly more than three quarters (78 per cent) of the full cohort did not have any experience of unemployment over the two year period. Nearly one-fifth (18 per cent) had experienced one spell of unemployment, and only 4 per cent had experienced two spells. A very small proportion (less than 1 per cent) had experienced three or more spells. These figures suggest that the problem of multiple spells of unemployment, i.e. the idea that many young people are dipping in and out of unemployment on a regular basis, is not particularly relevant within the Northern Ireland context.

If young people are not dipping in and out of unemployment on a regular basis, therefore, it is important to investigate the duration of unemployment spells for those who do experience it. Slightly more than two-fifths (44 per cent) of those young people who had experienced at least one spell of unemployment had a duration of three months or less, and one-fifth had a spell of what we might call 'medium' duration, i.e. 3-6 months (Table 3.14). It is of particular interest that more than one

third (36 per cent) of those with some experience of unemployment had experienced a spell of long duration, i.e. 6 months or more. Of these young people, about one half had spells of 6 - 12 months and the other half had spells of 12 or more months. Of those with durations of more than 12 months, it is particularly worrying that many young people had been continuously unemployed for 24 months.

Table 3.14: The Duration of Unemployment Spells

Duration of Spell	Young People with Only One Unemployment Spell (n=171)	All Young People with at Least One Unemployment Spell (n=201)
	Per cent	Per cent
Less than 3 Months	50	44
3-6 Months	18	20
6-12 Months	14	19
More than 12 Months	19	17
	100	100

Source: Status 0 Survey

Notes: For young people with more than one spell of unemployment the duration of the longest spell is given. Spells of unemployment experienced only in the Summer months of July and August are excluded.

3.6.4 A Simple Typology

Generally speaking, the figures presented above suggest that the problem of unemployment in Northern Ireland does not seem to be one of large numbers of young people aged 16 and 17 dipping in and out of unemployment on a regular basis. Rather, the problem seems to be more that young people find it hard to get out of unemployment after they have entered it, and so they experience spells of long duration. Thus, a simple typology can be constructed, which separately identifies those young people with no experience of unemployment, and those who experienced spells of different durations (Table 3.15). This shows that slightly less than one-tenth (8 percent) of the full cohort of young people had experienced spells of long duration (6 months or more). This represents approximately two thousand young

people in any one cohort. It is this group which represents the most serious problem from a policy point of view.[9]

Table 3.15: A Simple Typology of Unemployment Experiences

	Per cent of cohort
No experience of unemployment	78
Experienced only short spells of unemployment (1-3 months)	9
Experienced only medium spells of unemployment (3-6 months)	4
Experienced only long spells of unemployment (6+ months)	8
All	100

Source: Status 0 Survey
Notes Spells of unemployment experienced only in the Summer months of July and August are excluded

3.7 CONCLUSION

The Status 0 Survey was originally collected to investigate the nature and extent of unemployment amongst 16 and 17 year olds in Northern Ireland. However, many of the features of the survey, such as the type of background information collected, and the ways in which educational and economic activities are classified, are common to most other youth cohort studies conducted in GB and elsewhere. This means that it can be used to investigate other issues relating to youth transitions which are of interest from an academic and policy point of view.

An important strength of the survey is that it is not a simple snapshot, but contains detailed work-history information. All spells of educational and economic activity which lasted for more than two weeks were recorded. Since the survey was conducted by means of face-to-face interviews, we can be reasonably confident about the accuracy of this information. As shown above, this information has been used to investigate in detail 'dynamic' aspects of youth unemployment such as inflows, outflows and the duration of spells. This is important because some of the analysis presented below is concerned with the factors which influence the experience of unemployment amongst young people (e.g. the effect of psychometric testing on

[9] Because these proportions are based on our sample of 980 young people, it is important to calculate confidence intervals. When this is done the results indicate that we can be 95 per cent confident that the proportion of young people in the population who experienced long spells of unemployment lies between 6.3 per cent and 9.7 per cent.

unemployment) Having this work history information means that a more 'three dimensional' picture of the unemployment experience can be established, than would have been possible if only cross-sectional information were available.

One feature of the survey, which is less commonly found in other surveys, is the use of Careers Service records as the sampling frame.[10] One disadvantage of this is that the records in Northern Ireland tend to exclude most young people who stay on at grammar schools after the age of 16. This provides an important source of non-representativeness in the final sample, which had to be accounted for in the weighting procedure. However, there is a sense in which this has worked to the advantage of the present research, because the policy questions which are addressed relate mainly to young people who attend secondary schools, who are over-represented in the sample.

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[10] The main exceptions are the use of careers service records in Lancashire by Andrews and Bradley (1997). Andrews, Bradley and Upward (1997) and Upward (1998), and in South Glamorgan by Rees et al (1995).

CHAPTER 4

SCHOOL PERFORMANCE AND STAYING ON IN FULL-TIME EDUCATION

4.1 INTRODUCTION

There has been an on-going debate in the microeconomic empirical literature about the factors which influence the decisions of young people to remain in post-compulsory full-time education (e.g. Rice, 1987, Raffe and Willms, 1989, Micklewright, 1989, Micklewright, Pearson and Smith, 1990, O'Higgins, 1992, Gray, Jesson and Tranmer, 1994, Murphy and Shuttleworth, 1997 and Andrews and Bradley, 1997). Most of these studies have focused on the relative importance for the staying on decision of factors such as local unemployment rates, ethnic background, household income and qualifications. A more recent development in the literature has been the attempt to assess how staying on and labour market success are influenced by characteristics of the schools attended by young people up to Year 12 (e.g. Cheng, 1995 and Dolton and Vignoles, 1997). For example, Cheng (1995) examines the role of school-based factors in England and Wales such as teacher turnover, the proportion of students receiving free school meals, and the overall GCSE performance of the schools, along with a standard range of other socio-economic and background variables. In recent years interest in the role of such factors has been motivated, at least in part, by the controversial publication in the UK in recent years of school performance tables which have ranked schools according to their overall examination results, and have also included a range of other school performance indicators[11].

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[11] The publication of school performance tables has stimulated a lively public debate in the UK which has focused mainly on the overall costs of the exercise, and the usefulness of the particular type of information which is published (see, for example, *Financial Times*, 1995a and 1995b).

This chapter uses microeconomic survey data to investigate the links between school performance and educational and labour market choices amongst young people in Northern Ireland. From a technical point of view, the analysis is of some interest because the sample was originally stratified according to the educational and labour market choices made by the young people. Since it is these choices which are being modelled, such a stratification technique is endogenous, and standard discrete choice models must be adjusted to take account of this. The outline of the chapter is as follows: Section 2 shows how aggregate educational participation in Northern Ireland has changed over the past twenty years, and presents some aggregate figures on school performance and staying on in full-time education, based on administrative data for Northern Ireland schools. Section 3 reviews the existing literature on educational participation in the UK. Section 4 discusses the data, and Section 5 discusses the econometric methodology, focusing on the pooling of outcomes in multinomial logit models, and the modelling implications of endogenous stratification. Section 6 presents the main findings of the analysis and Section 7 summarizes the results of the chapter.

4.2 BACKGROUND

Participation in full-time education amongst young people in Northern Ireland has been on a steady upward trend over the past twenty years. For example, the percentage of 17 year olds remaining at school beyond the school leaving age increased from 20 per cent in 1976 to 37 per cent in 1995 (Table 4.1). Similar trends have been observed in Great Britain and in other industrialized countries.

Table 4.1: Participation Rates in Northern Ireland Schools

	1976	1981	1986	1991	1995
16 year olds	24.3	30.8	35.4	39.8	47.0
17 year olds	20.1	23.4	26.9	32.1	36.9

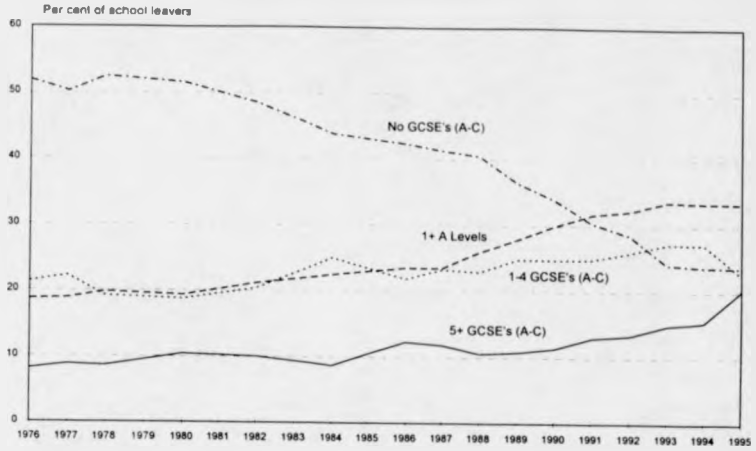
Source: Northern Ireland Annual Abstract of Statistics and NIERC estimates

Notes: Figures do not include young people at FE Colleges. Figures for 1995 are taken from the 1996 Northern Ireland Annual Abstract of Statistics (NIAAS). Figures for the earlier years are NIERC estimates based on previous issues of the NIAAS. The figures were estimated in order to account for a change in the way the data were collected in the early 1990s which rendered the most recent figures inconsistent with those from earlier years.

Raffe (1992) discusses the various explanations for these increases within the GB context under four main headings, all of which can be applied, to varying degrees, to the Northern Ireland context. Firstly, there has been a shift in *national and class cultures*. In particular, the occupational structure of employment has changed such that an increasing number of young people now come from households in which the parents are employed in non-manual occupations or have received post-compulsory education themselves. For a variety of reasons which will be explored later, young people from such backgrounds are more likely to stay on. Secondly, there has been a *push from compulsory schooling*. Here the main idea is that there have been significant improvements over the years in educational attainment up to the compulsory age, and these improvements have encouraged a larger number of young people to stay on in full-time education. An important part of this argument is that the introduction of GCSE qualifications resulted in a wider range of educational attainment being recognized, and this had a positive effect on staying on rates. The general improvement in educational attainment amongst Northern Ireland school leavers, which has taken place particularly since the early-1980s, are shown in Figure 4.1. Thirdly, there has been an increasing *pull from post-compulsory schooling*. For example, a number of policy decisions have been aimed at increasing participation in various forms of further and higher education and this, in turn, has encouraged a

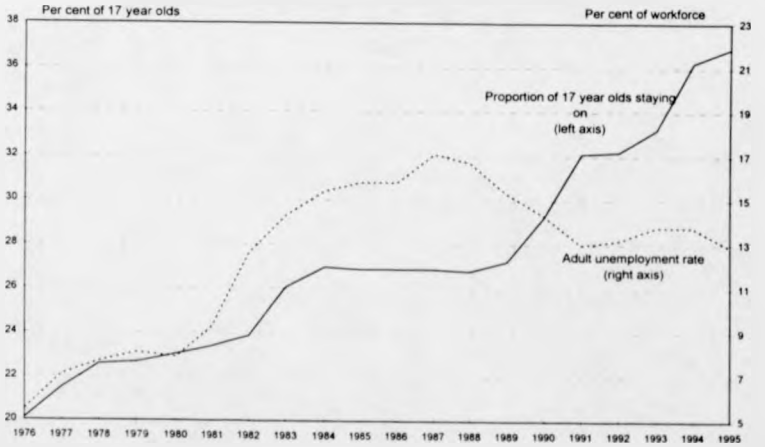
higher proportion of young people aged 16 and 17 to remain in full-time education. Finally, there has been an important *pull from the labour market*. For example, during the ten year period 1975-85, Northern Ireland experienced a substantial increase in unemployment from about 5 per cent of the workforce to just over 15 per cent. This may have encouraged more young people to remain in full-time education in order to avoid the higher chance of becoming unemployed themselves. Indeed, when the unemployment rate and the staying-on rate for 17 year olds are plotted together (Figure 4.2), it is quite difficult to avoid the conclusion that, up until the mid-1980s at least, the two tended to move together. After the mid-1980s the two seemed to part company, with participation rates continuing to increase and unemployment falling markedly during the so-called 'Lawson boom' period. However, another labour market 'pull' factor which might account for this relates to some of the changes which were made during the 1980s in the entitlement of young people to unemployment-related benefits. In particular, changes made in 1988 resulted in all but a tiny minority of 16 and 17 year olds becoming ineligible to claim unemployment-related benefits, and it is likely that this acted to increase participation in full-time education. The effect of these labour market pull factors on educational participation in Northern Ireland are explored later in this chapter.

Figure 4.1: Highest Qualification Attained Amongst Northern Ireland School Leavers (1976-95)



Source: NI Annual Abstract of Statistics
Notes: No GCSE's includes GCSE's at grades D-G and some other qualifications such as RSA and City & Guilds

Figure 4.2: School Participation amongst Young People and the Adult Unemployment Rate in Northern Ireland (1975-95)



Source: NI Annual Abstract of Statistics
Notes: See notes to Figure 4.1. Figures for staying on do not include young people at FE Colleges. The unemployment rate is claimant based for males and females.

4.3 LITERATURE REVIEW

4.3.1 UK Studies of Educational Participation

The main published UK studies which are comparable to the present study are listed in Table 4.3, along with some basic information about the data used in the analysis and the time period for which it took place. The studies have generally been motivated by a recognition of the importance of education for a number of different aspects of economic analysis. For example, Rice (1987), and Micklewright et al. (1990) set their analysis explicitly in the context of the argument, which began to be made increasingly during the 1980s, that standards of education in Britain were lower than in many other leading industrialised countries, and that this was acting as a significant constraint on macroeconomic performance. Although this was an important general motivation for the studies, some of them concentrated on a number of specific issues relating to the factors which influence educational participation. For example, Rice (1987) investigates the effects of household income, Gray, Jesson and Tranmer (1994) concentrate on the links between local labour demand conditions and educational participation, and Cheng (1995) focuses on the role of school characteristics.

Table 4.2: Some Published Studies of Educational Participation in the United Kingdom

Study	Data	Time Period
Rice (1987)	Family Expenditure Survey	1976
Micklewright (1989)	National Child Development Study	1981
Micklewright, Pearson, Smith (1990)	Family Expenditure Survey	1978-1984
O'Higgins (1992)	Youth Cohort Study	1983-84
Gray, Jesson and Tranmer (1994)	Youth Cohort Study	1986, 1988, 1990
Cheng (1995)	Youth Cohort Study	1989
Patterson and Raffe (1995)	Scottish Young Peoples Survey	1985-91
Murphy and Shuttleworth (1997)	Secondary Education Leavers Survey	1991
Andrews and Bradley (1997)	Careers Service data on school leavers in Lancashire	1991

Notes: These studies are 'cross-sectional' studies, i.e. they are based on sample surveys of young people at a particular point in time. In addition to these studies, others have investigated changes in educational participation over time (Pissarides, 1981 and Whitfield and Wilson, 1991). It is also worth noting that, a number of other relevant studies have remained in working paper format; these include Micklewright (1987) and (1988) based on the National Child Development Study; Micklewright, Pearson and Smith (1988), based on the Family Expenditure Survey (FES); Rice and McVicar (1996), based on aggregate time-series data; Leslie and Drinkwater (1996), based on data from the 1991 Census of Population.

4.3.2 The Theoretical Framework

Although none of these studies discusses theoretical issues in great detail, the empirical analysis tends to be set within the context of the so-called 'human capital' model of education. This specifies education as an investment which entails certain costs and derives certain benefits (Becker, 1964 and Ben-Porath, 1967). The basic idea underlying the model is that the individual will invest up to a particular level of education in such a way as to maximize the difference between the discounted benefits and the costs of the investment. The benefits are typically assessed in terms of the additional future income which can be earned as a result of the additional amount of education, although an important development to the basic model has been the introduction of uncertainty by allowing these earnings to be weighted to some extent by future unemployment probabilities. The costs of the investment are measured in terms of the financial costs associated with the particular level of education (e.g. tuition fees etc.) as well as the opportunity cost of the income which could be earned if the individual chose to enter the labour market instead of remaining in education. As with future earnings, it is helpful to weight the opportunity cost of foregone earnings by the present unemployment probabilities which the individual would face if he or she decided to leave full-time education.

4.3.3 The Effects of School Factors

Most of the micro studies of educational participation have included indicators of school type as explanatory variables in the analysis. For example, Micklewright (1989) and Gray et al. (1994) both found, unsurprisingly, that young people who attended independent and grammar schools were significantly more likely to remain in full-time education than those who attended maintained or comprehensive schools. A more recent development in the literature has been the attempt to assess the extent to which more specific factors relating to the school, which can broadly be classified as measures of 'school performance', have an influence on post-compulsory participation. One of the first studies of this nature is Cheng (1995), which examines Youth Cohort Study data for 1989. The main findings are as follows:

a) *Sex of School*: The raw data suggested that pupils from single sex schools were more likely to stay on than their counterparts. In the multivariate analysis, however, these effects were found to be statistically insignificant. (b) *Teacher Experience*: This was measured by the proportion of teachers with more than five years teaching experience. The raw data suggested that young people were more likely to stay on if they attended schools in which teachers were generally inexperienced. This was explained in terms of schools with younger teachers being better able to encourage staying on. In the multivariate models, however, this effect was generally insignificant. (c) *Teacher Turnover*: This was measured in terms of the proportion of teachers who left the school during the respective academic year. As expected, a high level of teacher turnover led to a significantly lower proportion of young people staying on. (d) *Pupil-Teacher Ratio*: No significant effects were found for this variable. (e) *Sixth Form Size*: This was calculated as the ratio of the number of students aged 16 and above to the number of students aged 14 and 15 in the school. Young people who attended schools with a relatively large sixth form were more likely to stay on, all other things being equal. This was interpreted in terms of unmeasured characteristics of schools such as peer group influence, school culture and morale. (f) *Free School Meals*: Schools with a large proportion of young people receiving free school meals were less able to retain pupils post-16. This was interpreted in terms of a traditional 'income effect', i.e. free school meals is a proxy for low income, and pupils from low income households are less likely to stay-on, all other things being equal.

Andrews and Bradley (1997) investigate in detail the role of school factors in their Multinomial Logit models of educational and labour market outcomes. They included five main variables, namely (a) school type, (b) whether or not there was a school selection policy, (c) the gender mix of the school, (d) 5th form size, and (e) overall examination performance of the school. The strongest effects came from the latter two variables: young people from schools with a relatively good overall examination performance, were more likely to stay on in full-time education. Those

from schools with large 5th forms were less likely to stay on in full-time academic education, but were most likely to enter youth training [12]

4.3.4 The Effects of Local Labour Market Factors

There has been a lively debate in the UK literature about the effects of local labour demand on post-compulsory participation in education. In micro models, labour demand is usually measured in terms of regional or local unemployment rates and economic theory suggests that both negative and positive effects might exist. For example, it could be argued that in areas or times of buoyant labour demand there would be a relatively low level of post-16 participation in education because the opportunity cost of young people staying-on is high, and they are encouraged to join the labour market and, in particular, to take up employment. These, then, are 'discouraged worker' type arguments, similar to those outlined below in the discussion of the effects of gender and ethnic background. On the other hand, it would be equally as plausible to argue that a negative relationship exists between the demand for labour and post-compulsory participation in full-time education. This might be the case because when unemployment is high, young people might perceive their future employment prospects to be weak, and so the estimation of discounted net benefits of staying-on would be lower than in a situation of buoyant labour demand. According to this argument, therefore, the demand for education is pro-cyclical and, as such, education behaves as a 'normal' consumption good.

A priori, therefore, economic theory suggests that it would be possible for labour demand conditions to influence post-16 participation decisions in different, and potentially opposing ways. A review of the findings of the main GB studies which have addressed the issue is given in Table 4.4 below, along with some basic

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[12] Dolton and Vignoles (1997) have investigated the effects of a range of school based factors on subsequent labour market success using the National Child Development Survey. The survey relates to children born in a particular week of March 1958. Information on earnings is available at 1991 when respondents were aged 33. The study found that key school variables such as pupil-teacher ratios and expenditure per pupil did not have a significant impact on subsequent earnings. This was contrary to some results from the US literature. In terms of the present chapter, the main reason why this study is of interest is because of the particular school variables investigated. Its relevance is limited, however, because (a) it is concerned with school inputs as opposed to outputs, and (b) it examines earnings in adulthood and not immediate post-16 destinations.

information about the micro datasets and how the local labour demand effects are measured. The balance of evidence for England and Wales suggests (a) that there is a broadly negative relationship between unemployment and educational participation, (b) that this relationship is not particularly significant from a statistical point of view. Five out of the seven studies shown in Table 4.4 find a broadly negative relationship to exist and of these five, four studies find the effect to be statistically insignificant in some cases (the exception is Cheng, 1995). For example, in Micklewright et al. (1990), the statistical significance of the unemployment rate variable is rather sensitive to small changes in model specification, particularly the inclusion or exclusion of region and year dummy variables.[13] This finding of a broadly negative relationship between regional unemployment and educational participation is consistent with the simple descriptive statistics on the geographical dispersion of participation rates in England and Wales, which show that participation rates have tended to be lower in the northern, traditionally high unemployment regions, and higher in the southern regions (see, for example, DfEE, 1995)[14].

Leslie and Drinkwater (1996) examine discouraged worker arguments in a slightly different way using data from the 1991 Census of Population, supplemented with earnings information from the Labour Force Survey. They estimate a joint equation for (a) leaving full-time education and (b) being unemployed, using a Bivariate Probit model. They find that individual unemployment chances are strongly and positively related to staying on probabilities and they argue that this provides additional evidence in support of the discouraged worker hypothesis. It should be

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13 Note that it is wrong for a model of this kind to include regional dummy variables as well as a regional unemployment rate variable. *A priori*, it is likely that the coefficient on the unemployment rate variable would change significantly, depending on which combination of regional dummy variables are included.

14 In terms of the two studies which find a positive relationship, it should be noted that Rice (1987) was based on much earlier data (for 1976) than the other studies and it may well be the case that, since this time, the effects of local conditions of labour demand have changed substantially. Also, the finding by Patterson and Raffe (1995) of a positive relationship was based on data for Scotland, where it is quite possible that local labour demand conditions may affect educational participation differently than in England and Wales. For example, the different effects for England and Scotland may arise because the structure of one year courses in Scotland provided more incentives to young people who were at most risk of unemployment.

noted, however, that this approach goes beyond the traditional approach used in the above studies, which is based on spatial unemployment differences. Leslie and Drinkwater base their evidence on the estimated rho correlation coefficient between the error terms in the two equations, but this is done *after* controlling for spatial differences using regional dummy variables. The estimated discouraged worker effect, therefore, relates to the links between *unobserved* individual differences in staying on and unemployment probabilities.

Table 4.3: The Effects of Local Unemployment on Post-16 Participation in Education: Findings From the Main GB Studies

Study	Effects of Unemployment on Post-16 Participation in Education	Comments
Rice (1987)	Positive	Cross-sectional estimates for the UK for 1976 based on Family Expenditure Survey data. Unemployment measured by unemployment rate in region relative to unemployment rate in West Midlands. Some regional dummies included in preferred model.
Patterson and Raffe (1995)	Positive	Cross-sectional estimates based on the Scottish Young Peoples Survey for 1985-91. Statistically significant effects were found in 1985, 1987 and 1989, but not in 1991.
Micklewright, Pearson and Smith (1990)	Negative	Pooled cross-sectional estimates for England and Wales based on Family Expenditure Survey for the period 1978-84. Unemployment was measured in terms of the seasonally adjusted regional unemployment rate. Although the sign of the coefficient is always negative, its statistical significance varies according to the model specification, especially when different combinations of year and region dummies are included.
O'Higgins (1992)	Negative	Cross-sectional estimates of England and Wales based on the Youth Cohort Study. Unemployment was measured in terms of the seasonally adjusted regional unemployment rate and the change in the regional unemployment rate between 1984 and 1985. Although negatively signed, the coefficient on the unemployment variables were generally insignificant. Note that indicators of youth unemployment were also included in the models to reflect the opportunity cost of participation. These had the expected positive sign although, as with adult unemployment, the coefficient was generally insignificant.
Gray, Jesson and Tranmer (1994)	Negative	Cross-sectional estimates for England and Wales based on the YCS for the periods 1986, 1988 and 1990. Unemployment rates were based on claimant count information for Travel-To-Work Areas. In order to ensure a sufficient sample size, the TTWA-based information was aggregated up a total of 74 Local Labour Markets. Note that the effect of unemployment was statistically significant only in one of the three separate models which were estimated. Measures of long-term unemployment and the change in total unemployment were also used in some of the models.
Cheng (1995)	Negative	Cross-sectional estimates for England and Wales based on cohort 5 of the Youth Cohort Study. Main indicator of unemployment was the TTWA unemployment rate, but unemployment-vacancy ratios were also used in some of the models.
Andrews and Bradley (1997)	Negative	Cross-sectional estimates for young people from Lancashire who became eligible to leave school in 1991. Education and labour market outcomes are measured at December 1991. Unemployment rates relate to April 1991 and are for the 14 Local Authority Districts in Lancashire. Educational participation is disaggregated into academic (i.e. school) and vocational. Only the marginal effect for staying on in academic education is significant.

Notes: In Micklewright (1989) the effects of local unemployment rates were not estimated. Instead, regional dummy variables for Wales and London were included in the models. It is likely that these dummies capture, amongst other things, the effects of regional differences in demand conditions.

4.3.5 Other Influences on Educational Participation

Gender and Ethnic Background

A standard finding in the literature is that girls are more likely to stay on in post-compulsory full-time education than boys. In addition, some studies have found that participation rates tend to be higher amongst young people from ethnic minorities (e.g. Drew et al., 1991, Gray et al., 1994, O'Higgins, 1992 and Cheng, 1995). Two main hypotheses have been put forward to explain these findings. Firstly, it is possible that some kind of 'discouraged worker' effect operates for young women and young people from ethnic minority backgrounds. According to such arguments, opportunities in the labour market for young women and young people from ethnic minority backgrounds are lower than for their male and 'white' counterparts, and so they are encouraged to stay on in full-time education as a means of avoiding the high risk of unemployment which they would experience if they entered the labour market. Secondly, and related to this, it could be argued that women and those from ethnic minority backgrounds recognise that they are likely to face various difficulties as adults in the labour market and so, in order to equip themselves to compete effectively, they choose to stay on in full-time education after the post-compulsory age. Such arguments are essentially 'human capital' type arguments.

Socioeconomic Group (SEG)

All of the empirical studies have found that young people from the 'higher' socio-economic groups tend to be significantly more likely than others stay on in full-time education, all other things being equal. SEG has generally been measured either in terms of parents' education or occupational status, although other measures such as the receipt of free school meals (Micklewright, 1988, Murphy and Shuttleworth, 1997) and housing tenure (Micklewright et al., 1990) have also been used.

Some of the studies have been concerned to decompose the effects of SEG into 'indirect' and 'direct' effects (e.g. Micklewright, 1989). The indirect effects are those which are mediated through, for example, school type and qualifications obtained during compulsory schooling. For example, it could be argued that the correlation between SEG and staying on might reflect the fact that young people from the

'higher' SEGs are, for a variety of reasons, more likely to attend selective or private schools and to perform well in examinations during compulsory schooling, and such young people, in turn, are more likely to stay on in full-time education. The direct effects of SEG are those which have an effect after having controlled for other variables such as school type and examination performance. In particular, they refer to the possibility that young people from the 'higher' SEGs might have higher staying on rates, irrespective of the type of school they attended or their performance in school examinations. This might be because the tastes and attitudes of young people, or their parents/peers in the higher SEGs are generally more favourable towards education, all other things being equal. Typically, such studies have found that the magnitude of the effect of SEG is reduced when the other relevant variables are controlled for, but that it remains statistically significant

Family Size and Birth Order

Most of the studies have found that young people who have a large number of siblings are less likely to stay on in full-time education. For example, Gray et al (1994) found that in the third cohort of the Youth Cohort Study, which covered young people who became eligible to leave school for the first time in 1986, the number of siblings had a statistically significant negative effect on the probability of staying on in full-time education after a range of other relevant factors had been controlled for. Theoretical studies suggest that older children are at an advantage because parental time spent with them will be greater prior to the birth of their younger counterparts. In support of this, Micklewright (1989) found that having a large number of older siblings (i.e. being one of the youngest children in the family) had a stronger influence on the school leaving decision than having a large number of younger siblings (i.e. being one of the oldest children in the family).

4.4 DATA

The survey database contained information on which schools the young people in the sample attended. A total of 211 grammar and secondary schools were accounted for in the sample, representing around 90 per cent of the total number of such schools in Northern Ireland.

School performance can be measured in a number of different ways. Official school performance tables concentrate on different measures of the examination performance of Year 12 (5th form) and Year 14 (upper 6th form) pupils in the school, but have also included other information relating, for example, to attendance rates and post-school destinations. This chapter focuses on two main indicators of school performance which are published annually by the Department of Education for Northern Ireland (DENI), namely (a) the proportion of Year 12 pupils gaining 5 or more GCSEs at grades A-C and (b) the school attendance rate. The focus is on these particular indicators for two main reasons: firstly, the information on qualifications and attendances is defined on an objective administrative basis and so a reasonable degree of confidence can be placed in the accuracy of the figures. This is in contrast, for example, to figures published by DENI on post-school destinations which are known to be less reliable[15]. Secondly, the proportion of young people with 5 or more GCSEs was chosen because it has tended to be the headline figure against which school performance at Year 12 is judged. One of the main reasons for this is that this

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15 In particular, figures are published each year in Northern Ireland on the proportion of leavers from each school who end up in an 'other' or an 'unknown' destination. This is generally taken to refer to young people who enter unemployment and so, *a priori*, we would expect this to be negatively correlated with school performance. However, such figures are based on the headteachers' knowledge of pupils' destinations which, particularly with respect to young people who leave full-time education, can be rather unreliable. For example, it is possible that the 'unknown' category includes a large number of young people who entered employment because (a) most youth employment in Northern Ireland is gained through informal contacts which the headteacher may not know about, and (b) young people in employment are not required to register as such with employment agencies, and so the headteacher often has no official means of checking on young people's employment status. In spite of such caveats, the role of this variable as an indicator of school performance is investigated in more detail in the micro analysis presented in Section 5 below. As will be seen, the results of the analysis seem to confirm the doubts about its reliability as an indicator of school performance.

particular level of educational attainment is taken by many to be a minimum threshold level which is necessary for young people to make a successful transition from school to work and, subsequently, to participate successfully in the adult labour market.

School performance measures for the school year 1992/93 were taken from DENI (1994b) and entered into the database. Simple descriptive statistics for the two main school performance variables are given in Table 4.5. A number of points are worth noting: firstly, school performance is significantly lower amongst young people from Belfast and Derry than elsewhere in Northern Ireland. This is consistent, for example, with some recent figures from Great Britain which show that truancy rates amongst pupils from inner city areas are generally higher than average (Hagell and Shaw, 1996). Secondly, it is clear from the standard deviations reported in Table 4.6, that there is a much greater degree of spread in the figures on school examination performance compared to the attendance rate. Thirdly, there is a close correspondence between the sample-based descriptive statistics on school performance and aggregate figures taken from DENI (1994b) giving the average performance for Northern Ireland schools (Table 4.7). This is encouraging with respect to the representativeness of the sample. Descriptive figures on the other variables used in the econometric analysis are shown in Table 4.6

Table 4.4: School Performance Measures

	Examination Performance		Attendance Rate	
	Grammar & Secondary School Pupils (n=980)	Secondary School Pupils Only (n=827)	Grammar & Secondary School Pupils (n=980)	Secondary School Pupils Only (n=827)
Belfast	17.4 (15.9)	16.1 (10.3)	88.1 (3.8)	88.3 (3.1)
Derry	25.3 (23.3)	17.9 (11.2)	90.7 (2.6)	90.0 (2.2)
Rest of N Ireland	53.3 (32.5)	28.9 (14.3)	93.0 (2.6)	91.5 (2.2)
Northern Ireland	47.6 (33.0)	26.0 (14.5)	92.3 (3.1)	90.1 (2.6)

Source: Status 0 Survey and DENI (1994b)

Notes: Figures are weighted. Figures for secondary school pupils include a small number who attended independent schools, special schools and FE colleges. Examination performance gives the proportion of year 12 pupils in the school who achieved 5 or more GCSEs (Grades A-C). Figures from 'Administrative Data' are average values calculated for all Northern Ireland grammar and secondary schools. The attendance rate is defined as the total number of attendances throughout the 1992/93 school year as a percentage of the maximum possible number of attendances by those pupils. Days on which pupils are absent include illness and other approved absences as well as any unauthorised absences. Standard deviations are given in parentheses. Note that location refers to residence as opposed to school. This is in contrast to the figures presented in Chapter 3 above (Section 3.3.4), which referred to school location.

Table 4.5: A Comparison of Average School Performance in the Status 0 Survey and in the Population of Schools

	Status 0 Survey		Administrative Data	
	Examination Performance	Attendance Rate	Examination Performance	Attendance Rate
Grammar School Average	87	95	90	95
Secondary School Average	26	90	25	91

source: Status 0 Survey and DENI (1994b)

Notes: See notes to Table 4.4

Table 4.6: Mean Values of Explanatory Variables

	Grammar and Secondary School Pupils (n=980)	Secondary School Pupils only (n=827)
School Performance Variables		
% Year 12 Pupils with 5+ GCSEs (A-C)	47.6	26.0
	(33.0)	(14.5)
Attendance Rate	92.3	90.1
	(3.1)	(2.6)
% of leavers in 'unknown' or 'other' category	5.8	7.3
	(6.2)	(6.8)
Other Variables		
Catholic	0.54	0.50
Protestant*	0.46	0.50
Male*	0.55	0.55
Female	0.45	0.45
Father employed FT	0.63	0.55
Father unemployed/other*	0.37	0.45
Mother employed FT	0.28	0.24
Mother unemployed/other*	0.72	0.76
Number of younger siblings	1.2	1.4
Number of older siblings	1.4	1.4
Living with father and mother	0.82	0.79
Not living with father and mother*	0.18	0.21
Local Unemployment Rate	19.7	20.0
	(6.0)	(6.3)
Belfast District Council (DC)	0.10	0.15
Derry District Council (DC)	0.07	0.09
North	0.11	0.08
South	0.18	0.15
East	0.22	0.27
West*	0.32	0.26
No. of GCSE passes (A-C)	4.3	2.5

Source: Status 0 Survey

Notes: Details of the construction of the weighting variables are given above. For continuous variables, standard deviations are given in parentheses.

For dummy variables, the categories used as the default categories in the econometric models are marked with an asterix.

Figures on school performance are taken from DENI (1994b). The school attendance rate is defined as the total number of attendances by pupils throughout the 1992/93 school year as a percentage of the maximum possible number of attendances by those pupils. Days on which pupils are absent include illness and other approved absences as well as any unauthorized absences.

'Protestant' includes all non-Catholic denominations as well as a small number of young people who were of another religion or 'no religion'.

Local unemployment rate figures are claimant-based for October 1993 for adult males at Local Government District level. Travel-to-Work (TTWA) dummy variables are defined as follows: North=Coleraine and Ballymena TTWAs; South=Craigavon and Newry TTWAs; East =Rest of Belfast TTWA (i.e. excluding Belfast DC); West=Magherafelt, Cookstown, Dungannon, Omagh, Enniskillen, Strabane and Londonderry TTWAs.

4.5 ECONOMETRIC METHODOLOGY

4.5.1 Pooling Educational and Labour Market Outcomes

Most existing studies have investigated educational participation in terms of a discrete (1,0) dummy variable, i.e. =1 if the young person remains in full-time education after the age of 16, and =0 otherwise. In some more recent studies, however, it is being recognized that decisions at age 16 are more complicated than this, and cannot be represented adequately in terms of a simple dichotomous choice (e.g. Andrews and Bradley, 1997, Green, Hoskins and Montgomery, 1996 and Andrews, Bradley and Upward, 1997). There are a number of aspects to this: firstly, the traditional category of 'full-time education' includes young people who stayed on at school as well as those who left school and entered FE colleges. The vast majority of young people who stay on at school, particularly at the time of the survey used in the present analysis, follow a traditional academic pathway. For example, official figures show that 95 per cent of secondary school pupils in Northern Ireland who stayed on at school in 1993 studied for either A levels or GCSEs (DENI, 1995). In contrast, less than one tenth of students who entered FE colleges in 1993 studied for GCSEs or A Levels; the majority took a range of vocational qualifications, the most popular of which at the time were BTECs, and GNVQs (Armstrong, 1998d). Secondly, young people who are traditionally classified as 'labour market entrants' might be best considered in terms of the separate constituent activities of vocational training, employment or unemployment/inactivity.

The identification of separate states in multinomial logit models is essentially an empirical question which can be addressed using a test statistic originally proposed by Cramer and Ridder (1991). The specification of the test is outlined in Appendix 4A. In the present analysis, two separate tests have been performed, namely (a) a test for separating young people in full-time education into those at school and those at FE colleges, and (b) a test for separating labour market entrants into those who entered

employment and those who entered vocational training or unemployment.[16] The null Hypothesis in the Gramer-Ridder test is that the separate states which are candidates for pooling have the same regressor coefficients apart from the intercept (see Appendix 4A). For each of the two tests, the null hypotheses of pooling the separate states are rejected. The conclusion, therefore, is that the most appropriate model should be a multinomial logit for the four main states of school, FE, employment and vocational training/unemployment.

4.5.2 The Multinomial Logit Model

As outlined above, a total of four outcomes (j=0, 1, 2 and 3) are modelled. The values of the dependent variable y_i are as follows:

$y_i=3$ if young person stayed on at school
$y_i=2$ if young person entered FE college
$y_i=1$ if young person entered employment
$y_i=0$ if young person entered vocational training or unemployment (1)

Let β_j represent the vector of coefficients on the vector of explanatory variables x_i. In the multinomial logit model the usual normalization is to assume that $\beta_0 = 0$; given this, the individual probabilities are given by:

$$P(y_i = j) = \frac{\exp(\beta_j x_i)}{1 + \sum_{j=1}^{J} \exp(\beta_j \chi_j)} \qquad (2)$$

A total of J-1 sets of coefficient vectors are estimated. Let $P_j = P(y_i = j)$. The marginal effects can then be expressed as $\delta P_j/\delta x_i = P_j (\beta_j - \Sigma_k P_k \beta_j)$.

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[16] In the present sample, the number of young people who entered unemployment is too small to allow this to be used as a separate category, and so the unemployed have been grouped with those in vocational training. The unemployed were not grouped with the employed for two main reasons: firstly, unemployed young people are more similar in terms of characteristics, such as qualifications and family background, to those in vocational training. Secondly, vocational training schemes throughout the UK were originally a response to rising levels of youth unemployment, and they continue to be regarded by many as representing a form of 'hidden' or 'disguised' unemployment.

4.5.3 Accounting for Choice Based Sampling

As discussed above, the sample was stratified according to the education and labour market status of the young people, i.e. a pre-determined number of young people who were in each of the different forms of activity were selected to be included in the sample. This kind of sampling scheme has been referred to in the literature as 'endogenous' or 'choice-based' sampling, because the probability of an individual being included in the sample depends on the education and labour market choices which he or she makes, and which are being modelled. A number of different estimators have been proposed to deal with this problem, and they are reviewed by Manski and McFadden (1981) and Amemiya (1985). The estimators are of two main types, namely those that require prior knowledge of the population proportions for the stratification variable and those which do not. In our case, we do know the population proportions, i.e. the proportion of young people in the population in each of the different forms of economic activity. Given this, the estimator used in the analysis is that of Manski and Lerman (1977). In a traditional multinomial logit model, the log likelihood can be expressed as follows:

$$\ln L = \sum_i \sum_j d_{ij} \ln P(y_i = j) \qquad (3)$$

where $d_{ij}=1$ if individual i chooses option j, and =0 otherwise.

The Manski and Lerman estimator is based on the following weighted log likelihood function:

$$\ln L = \sum_i \sum_j d_{ij}\, w(y_i = j) \ln P(y_i = j) \qquad (4)$$

where $w(y_i = j) = C_j/S_i$ and C_j and S_j are the population and sample proportions respectively in category j.[17] Manski and Lerman (1977) also show that the appropriate estimate of the variance-covariance matrix is not the standard one given by the Cramér-Rao lower bound but, rather, is given by:

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[17] Andrews, Bradley and Upward (1997) use this estimator in their multinomial logit selection equation for post-16 choices made by young people in Lancashire.

$$H^{-1} \quad B \quad H^{-1}$$

where $$H = -\left(\frac{\delta^2 \ln L^*(\hat{\beta})}{\delta\hat{\beta}\,\delta\hat{\beta}'}\right)$$

$$B = \sum_i g_i g_i$$

and $$g_i = \frac{\delta \ln L^*(\hat{\beta})}{\delta\hat{\beta}}$$

(5)

H is the negative of the Hessian of the weighted log likelihood. L* is the weighted log likelihood, and $\hat{\beta}$ is the estimated coefficient vector. As indicated above, the unweighted version of this is the usual estimate of the variance-covariance matrix when maximum likelihood techniques are used. B is the summed outer product of the first derivatives of the weighted log likelihood. This, in fact, is sometimes used as an alternative estimate of the variance-covariance matrix for maximum likelihood parameter estimates, and it was first suggested in the literature by Berndt et al. (1974).

4.6 RESULTS

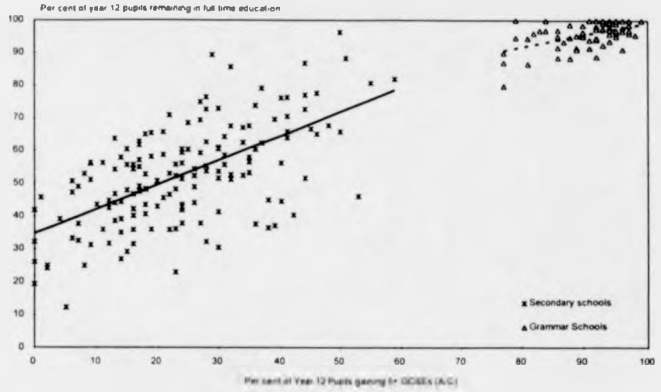
4.6.1 Aggregate Analysis Based on Schools Data

Before examining the results from the econometric analysis of the survey database, it is helpful to investigate the aggregate relationships using data for Northern Ireland schools. In this analysis, the total number of observations (n=227) corresponds to the total number of post-primary schools in Northern Ireland which participate in the school performance exercise. The variables relate to the proportion of young people *in each school* who stay on in full-time education, along with the corresponding school performance measure for the particular school.

The aggregate relationships for Northern Ireland schools between overall GCSE performance and attendance rates on the one hand, and the proportion of pupils who remain in full-time education in grammar and secondary schools on the other, is shown in Figures 4.3 and 4.4 respectively. In each of the figures, grammar schools tend to be clustered around the top right hand corner, having the higher values of the two school performance measures, and significantly higher staying on rates. There is no doubt that this contributes to the overall impression of a positive relationship between the relevant variables. Nevertheless, the figures suggest that, even after accounting for these differences, a positive relationship exists between the two measures of school performance and participation rates. The figures also suggest that the relationship between overall GCSE performance and staying on is somewhat stronger than that for the attendance rate.

The relationships illustrated in Figures 4.3 and 4.4 are summarized in Table 4.2 in terms of simple logit models. The attendance rate is statistically insignificant in all of the models whereas the examination performance variable is highly significant, except in the model for grammar school pupils only. The marginal effects suggest that a 10 percentage points improvement in the examination performance measure in secondary schools would result in an overall increase in educational participation of around 7.5 percentage points.

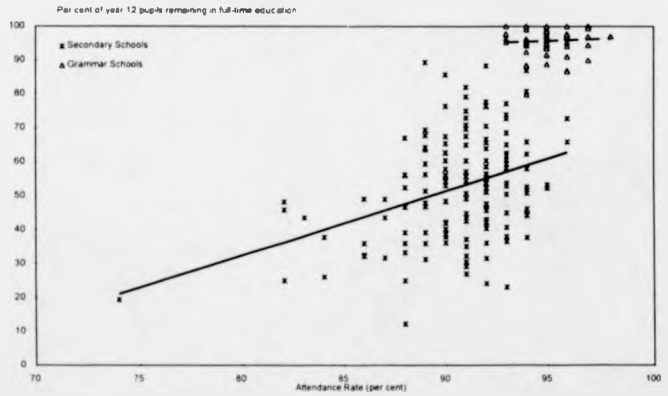
Figure 4.3: Educational Participation and School Examination Performance in Northern Ireland Schools: 1992/93



Source: DENI and Training and Employment Agency (T&EA)

Notes: Figures relate to grammar and secondary schools in Northern Ireland. Data for special schools and independent schools are not available. In Northern Ireland, a small proportion of each cohort (around 3 per cent) proceed through Years 11 and 12 at Further Education (FE) colleges; figures for such young people are also unavailable. Full-time education refers to those who stay on at school and those who continue their education after Year 12 at an FE college. The lines are OLS regression lines for grammar and secondary schools separately.

Figure 4.4: Educational Participation and the School Attendance Rate in Northern Ireland Schools: 1992/93



Source: DENI and T&EA

Notes: The school attendance rate is defined as the total number of attendances by pupils throughout the 1992/93 school year as a percentage of the maximum possible number of attendances by those pupils. Days on which pupils are absent include illness and other approved absences as well as any unauthorized absences. Attendance figures relate to all pupils, i.e. not just Year 12 pupils. Full-time education refers to those who stay on at school and those who continue their education after Year 12 at an FE college. The lines are OLS regression lines for grammar and secondary schools separately.
See notes to Figure 4.3

Table 4.7: The Aggregate Relationship Between Staying -On and School Performance in Northern Ireland Schools: Logit Model Results

	Grammar & Secondary Schools			Secondary Schools Only			Grammar Schools Only		
	marg effect	s.e.	mean of x	marg effect	s.e.	mean of x	marg effect	s.e.	mean of x
Constant	0.01	1.17	-	-0.27	1.50	-	-0.42	2.08	-
% Yr 12 pupils gaining 5+ GCSEs (A-C)	0.84*	0.16	0.44	0.75*	0.39	0.24	0.30	0.34	0.90
Attendance Rate	-0.20	1.32	0.92	0.13	1.70	0.90	0.29	2.15	0.95
No of Observations	227			158			69		
Log Likelihood	-118.7			-106.4			-11.8		
Mean of Dependent Variable	0.66			0.53			0.96		

Note: See notes to Figures 4.3 and 4.4 above. Marginal effects are calculated at sample means. The standard errors relate to the marginal effects, not the underlying coefficients. Variables for which the underlying coefficient is statistically significant at least at a 10 per cent level are marked with an asterix.

The relatively strong relationship between school examination performance and staying on is, perhaps, unsurprising. In particular, it is clear that for young people to be able to remain in full-time education, for example, to study for A levels or their vocational equivalent, they generally need to have achieved 5 or more GCSE passes by the end of Year 12. Since such young people are more likely to be found in schools with a good overall GCSE performance, this ought to explain a large part of the observed relationships. Similarly, young people who attend 'good' schools are more likely to come from the type of family backgrounds which would encourage staying on. In spite of these factors, it is important to recognize that there may be other features of good schools which encourage young people to remain in full-time education after the compulsory stage. In particular, it may be the case that the prevalent 'culture' in such schools, in terms of the attitudes, aspirations and experiences of staff and pupils, is particularly favourable towards staying on. It could be argued that such factors are likely to have an important influence on staying on *over and above* that which is mediated by the qualifications achieved by the young people, their family backgrounds and other related factors. The main aim of the econometric analysis of the survey data presented below is to assess the validity of such arguments.

4.6.2 Micro Analysis Based on Survey Data

School Performance Measures

The two main school performance measures, namely overall examination performance and attendance rates, generally have the expected positive influence on educational participation (Tables 4.8 and 4.9);[18] young people who attended schools with a good examination performance and high attendance rates, were generally more likely to remain in full-time education than they were to enter vocational training or unemployment. This is the case, even after controlling for a range of related factors, including the GCSE performance of the young people themselves, and so these findings represent the 'direct' effect of school performance on educational participation.

The other potential measure of school performance investigated was the proportion of school leavers who entered an 'other' or 'unknown' activity although, as outlined above, there were prior doubts about the accuracy and usefulness of this information. Generally speaking, the results of the models suggest that this has a positive, albeit weak, impact on school participation. To the extent that this variable is an indicator of school performance, these findings are counterintuitive. Therefore, they are probably best interpreted as reflecting the problems associated with this variable as an indicator of school performance, rather than any kind of 'perverse' relationship in the models.[19]

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[18] Simple crosstabulations between the post-16 destinations and explanatory variables are given in Appendix 4B.

[19] For example, if, as argued above, this variable captures a large number of young people who entered employment, the positive coefficient is more easily explained. In addition to this, it could be argued that the 'other' category might include other forms of non-traditional activity such as, travelling and voluntary working, which we might expect to be positively correlated with overall staying on rates.

In terms of explaining the findings relating to the two main school performance measures, it is worth noting that there are a large number of studies in the educational and sociology literature, which have investigated various aspects of 'school culture' (e.g. Maxwell and Thomas, 1991 and Heck and Marcoulides, 1996). School culture is defined in these studies in a variety of ways, but essentially the term is intended to reflect aspects of the organisation and ethos of schools, which impinge upon how they function as learning environments. It would seem plausible to argue that the school performance measures used in the present analysis are capturing different aspects of school culture which encourage young people to remain in full-time education after the compulsory age. In particular, the examination performance variable might capture the degree of academic orientation in school culture, i.e. the extent to which the school focuses specifically on fostering academic attainment, and encouraging young people to follow the traditional academic route. The attendance rate of the school might then be taken to represent other aspects of school culture, which relate more to the general acceptability of the school environment amongst pupils; this will be reflected in a variety of factors, e.g. the quality of staff-student relationships, perceptions amongst pupils of the headteacher, teaching methods etc.. Within this context, it is worth noting that the statistical significance of the two main school performance variables depends on the particular outcomes and models being considered; for example, in terms of staying on at school, the most important variable is the overall examination performance, whereas the attendance rate seems to have a more significant influence on participation in FE.[20] The above interpretation of these variables as indicators of different aspects of school culture, is consistent with these findings. In particular, since most young people who stay on at school as opposed to FE, tend to follow a traditional academic pathway, the extent of academic orientation in the school is likely to be the key school variable which influences the decision about staying on. In contrast, although young people at FE colleges have decided to remain in full-time education, they tend to take vocational courses, and so the academic orientation of the school is not likely to have a major influence on their decisions. However, we *would* expect them to

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[20] Note that similar findings on the links between the attendance rate and participation in FE in Northern Ireland, based on aggregate data for schools, are presented in Sutherland (1994).

have had positive experiences of compulsory schooling and, in particular, to have come from schools which provided a positive and acceptable learning environment for pupils.

In terms of the overall size of the effect of school performance, consider the marginal effects for the examination performance variable. In Model 1, which includes only the school performance variables, the marginal effect on school participation is 0.007, indicating that a 10 percentage points increase in this measure of school performance would bring about a 7 percentage points increase in the chances of young people staying on at school. In Model 3, which includes the full range of other variables, the marginal effect is 0.004, suggesting that slightly less than one half of the 'raw' correlation between this measure of school performance and staying on at school, can be explained in terms of the correlation between school performance and the other variables in the model. The marginal effect of the attendance rate on FE participation is 0.02 in Model 1 and 0.03 in Model 3. This suggests that the 'raw' correlation between the attendance rate and FE participation actually underestimates the 'direct' effect of school performance. Since one of the main aims of the present analysis is to identify the *ceteris paribus* effects of school performance, the 'preferred models' in Tables 4.8 and 4.9 are Models 3 and 6, which control for the full range of individual and background factors.

Finally, we might expect the effect of school performance on educational participation to be inextricably linked to the qualifications levels attained by the young people themselves. For example, since young people generally require 5 or more GCSEs to stay on at school, we might expect school performance to influence staying on mainly amongst those who achieved this level. In order to test for this, models were estimated which included interaction terms between individual educational attainment and the three school performance measures (see Appendix 4C for details). The interaction term which is of most interest is the one between school examination performance, and whether or not the young people achieved 5+ GCSEs. When this variable is included, it has a significant effect of the expected sign on the chances of staying on at school, and the independent effect of examination performance on staying on drops out. This provides some support for the view that the effects of school performance and individual performance are strongly related.

However, this relates only to the decision to stay on at school and not to the decision to enter an FE college. This is to be expected since unlike most schools, FE colleges do not have formal entry requirements post-16 and, indeed, FE tends to be the preferred destination amongst those who fail to meet such requirements but who want to remain in full-time education. Since the rationale behind the interaction terms, therefore, is relevant for only one of the four main post-16 destinations, the 'preferred models' remain Models 3 and 6.

Table 4.8: Multinomial Logit Models of Educational and Labour Market Outcomes: Secondary and Grammar School Pupils

	Model 1			Model 2			Model 3		
	Mar. Eff	Coef	t	Mar. Eff	Coef	t	Mar. Eff	Coef	t
Outcome = School (y=3)									
Constant	1.35	-0.38	-0.114	0.73	-2.44	-0.63	1.69	0.94	0.23
% of Yr 12 pupils with 5+ GCSEs (A-C)	0.007	0.34	5.14	0.006	0.03	4.20	0.004	0.016	2.25
Attendance Rate	-0.02	-0.007	-0.18	-0.01	-0.002	-0.05	-0.02	-0.043	-0.96
% of leavers in 'unknown' / 'other'	0.006	0.03*	1.94	0.007	0.03	1.955	0.007	0.02	1.52
Grammar School	0.15	0.37	0.87	0.19	0.63	1.42	0.16	0.26	0.60
Catholic				0.03	0.26	1.38	0.02	0.23	1.08
Female				0.18	0.999	5.69	0.15	0.86	4.39
Number of Older Siblings				-0.02	-0.075	-1.31	-0.02	-0.057	-0.94
Number of Younger Siblings				0.03	0.099	1.47	0.03	0.086	1.12
Father Employed Full Time				-0.02	0.022	0.113	-0.06	-0.19	-0.83
Mother Employed Full Time				0.12	0.587	2.70	0.12	0.62	2.57
Living with Father and Mother				0.16	0.592	2.58	0.14	0.39	1.49
Local Unemployment Rate				0.009	0.024	1.50	0.01	0.03	1.69
1-4 GCSE Passes (A-C)							-0.05	0.38	1.67
5+ GCSE Passes (A-C)							0.47	3.28	9.78
Outcome = FE College (y=2)									
Constant	-2.12	-12.86	-3.08	-1.67	-11.48	-2.48	-2.05	-10.74	-2.20
% of Yr 12 pupils with 5+ GCSEs (A-C)	-0.001	0.014	1.72	-0.002	0.009	1.03	-0.002	-0.001	-0.10
Attendance Rate	0.02	0.13	2.87	0.02	0.12	2.43	0.03	0.11	2.06
% of leavers in 'unknown' / 'other'	-0.004	-0.007	-0.41	-0.005	-0.01	-0.66	-0.006	-0.01	-0.84
Grammar School	-0.14	-0.59	-1.41	-0.13	-0.34	-0.63	-0.16	-0.72	-1.30
Catholic				0.03	0.34	1.62	0.04	0.34	1.53
Female				-0.01	0.58	2.94	-0.03	0.46	2.23
Number of Older Siblings				0.008	0.001	0.02	0.009	0.01	0.18
Number of Younger Siblings				-0.01	-0.02	-0.33	-0.02	-0.35	-0.45
Father Employed Full time				0.03	0.20	0.94	0.04	0.097	0.45
Mother Employed Full Time				-0.01	0.29	1.20	-0.02	0.30	1.93
Living with Father and Mother				-0.08	-0.10	-0.40	-0.10	-0.29	-1.15
Local Unemployment Rate				-0.009	-0.03	-2.02	-0.009	-0.03	-1.73
1-4 GCSE Passes (A-C)							0.16	1.11	4.72
5+ GCSE Passes (A-C)							0.08	2.70	7.44

Table 4.8 continued

Outcome = Employment (y=1)									
Constant	-0.04	-4.09	-0.57	-0.07	-5.93	-0.74	-0.11	-5.84	-0.72
% of Yr 12 pupils with 5+ GCSEs (A-C)	-0.0004	0.009	0.58	-0.0004	0.007	0.42	-0.0001	0.006	0.40
Attendance Rate	-0.0003	0.02	0.22	0.0003	0.04	0.41	0.001	0.03	0.39
% of leavers in 'unknown' / 'other'	0.001	0.04	1.39	0.0009	0.04	1.34	0.001	-0.17	1.34
Grammar School	-0.005	0.09	-0.09	-0.009	-0.02	-0.02	-0.004	-0.19	-0.16
Catholic				-0.013	-0.15	-0.37	-0.01	0.27	-0.47
Female				-0.013	0.27	0.74	-0.01	0.08	0.72
Number of older Siblings				0.004	0.07	0.71	0.003	0.02	0.71
Number of Younger Siblings				-0.001	0.02	0.14	-0.0005	0.21	0.18
Father Employed Full Time				0.005	0.19	0.48	0.009	0.21	0.52
Mother Employed Full Time				-0.02	-0.18	-0.37	-0.02	-0.20	-0.42
Living with Father and Mother				-0.02	-0.28	-0.61	-0.01	-0.33	-0.69
Local Unemployment Rate				0.0002	0.009	0.29	0.0001	0.01	0.38
1-4 GCSE Passes (A-C)							-0.01	0.14	0.38
5+ GCSE Passes (A-C)							-0.06	0.37	0.54
Log Likelihood	-1044			-1004			-901		
Log Likelihood (constant slopes)	-1140			-1140			-1140		
Chi-squared	192			272			479		
Pseudo R^2	0.08			0.12			0.21		

Notes: See Table 4.7 above for variable definitions etc. The Pseudo R^2 is given as $1 - (L/L_o)$ where L is the log likelihood and L_o is the restricted (constant slopes) log likelihood. The models are choice-based sampling models recommended by Manski and Lerman (1977). The default group is young people in vocational training or unemployment. The standard errors for marginal effects are available from the author on request. Number of observations = 980.

Table 4.9: Multinomial Logit Models of Educational and Labour Market Outcomes: Secondary School Pupils Only

	Model 4			Model 5			Model 6		
	Mar Eff	Coef	t	Mar Eff	Coef	t	Mar Eff	Coef	t
Outcome = School (y=3)									
Constant	0.75	-0.94	-0.26	0.45	-2.25	-0.537	1.11	1.14	0.26
% of Yr 12 pup with 5+ GCSEs (A-C)	0.006	0.038	4.83	0.005	0.032	4.052	0.004	0.02	2.45
Attendance Rate	-0.01	-0.007	-0.18	-0.011	-0.01	-0.22	-0.02	-0.05	-1.04
% of leavers in 'unknown' / 'other'	0.005	0.027	2.06	0.005	0.03	1.81	0.005	0.22	1.49
Catholic				-0.009	0.095	0.46	-0.009	0.11	0.48
Female				0.17	1.13	6.12	0.14	0.89	4.38
Number of older Siblings				-0.01	-0.050	-0.83	-0.007	-0.03	-0.51
Number of Younger Siblings				0.03	0.10	1.45	0.02	0.08	1.00
Father Employed Full Time				-0.02	-0.01	-0.05	-0.06	-0.23	-1.003
Mother Employed Full Time				0.11	0.70	3.03	0.12	0.73	2.90
Living with Father and Mother				0.12	0.58	2.33	0.10	0.39	1.43
Local Unemployment Rate				0.006	0.024	1.42	0.006	0.02	1.29
1-4 GCSE Passes (A-C)							0.001	0.44	1.84
5+ GCSE Passes (A-C)							0.38	2.95	9.15
Outcome = FE College (y=2)									
Constant	-2.27	-12.34	-3.18	-2.06	-11.62	-2.67	-2.17	-10.46	-2.27
% of Yr 12 pupils with 5+ GCSEs (A-C)	0.001	0.019	2.23	-0.0001	0.012	1.39	-0.001	0.001	0.14
Attendance Rate	0.025	0.13	2.90	0.02	0.12	2.53	0.02	0.10	2.07
% of leavers in 'unknown' / 'other'	-0.003	-0.005	-0.37	-0.004	-0.01	-0.65	-0.004	-0.01	-0.82
Catholic				0.074	0.41	2.00	0.08	0.40	1.89
Female				0.03	0.59	3.15	0.007	0.39	1.99
Number of Older Siblings				-0.002	-0.03	-0.42	0.0001	-0.01	-0.11
Number of Younger Siblings				-0.02	-0.07	-0.99	-0.02	-0.08	-1.15
Father Employed Full Time				0.05	0.25	1.28	0.04	0.13	0.63
Mother Employed Full Time				0.027	0.36	1.57	0.02	0.36	1.48
Living with Father and Mother				-0.055	-0.09	-0.39	-0.09	-0.29	-1.21
Local Unemployment Rate				-0.006	-0.02	-1.35	-0.006	-0.02	-1.25
1-4 GCSE Passes (A-C)							0.18	1.06	4.87
5+ GCSE Passes (A-C)							0.30	2.62	8.34

Table 4.9 continued

Outcome = Employment (y=1)									
Constant	0.037	-2.93	-0.43	-0.033	-4.58	-0.595	-0.08	-4.55	-0.59
% of Yr 12 pupils with 5+ GCSEs (A-C)	-0.0002	0.013	0.85	-0.0001	0.01	0.66	0.0002	0.01	0.66
Attendance Rate	-0.0015	0.003	0.045	-0.001	0.02	0.25	0.0001	0.02	0.23
% of leavers in 'unknown' / 'other'	0.0013	0.03	1.37	0.001	0.03	1.28	0.001	0.03	1.27
Catholic				-0.01	-0.093	-0.24	-0.01	-0.12	-0.32
Female				-0.01	0.22	0.63	-0.008	0.20	0.57
Number of Older Siblings				0.004	0.061	0.63	0.004	0.07	0.66
Number of Younger Siblings				-0.002	-0.023	-0.18	-0.0008	-0.02	-0.15
Father Employed Full Time				0.006	0.18	0.47	0.01	0.19	0.51
Mother Employed Full Time				-0.02	-0.18	-0.39	-0.03	-0.2	-0.45
Living with Father and Mother				-0.02	-0.28	-0.65	-0.02	-0.32	-0.74
Local Unemployment Rate				0.0004	0.009	0.32	0.0006	0.01	0.40
1-4 GCSE Passes (A-C)							-0.01	0.21	0.59
5+ GCSE Passes (A-C)							-0.07	0.19	0.28
Log likelihood	-986			-948			-866		
Log likelihood (constant slopes)	-1017			-1017			-1017		
Chi-square	62			138			303		
Pseudo R^2	0.03			0.07			0.15		

Notes See notes to Table 4.8 Number of observations = 827

Local Unemployment Rates

The results of the models suggest that local unemployment rates have a different effect on the decision to stay on at school compared to the decision to continue full-time education at an FE college. In particular, a statistically significant negative relationship was found between local unemployment rates and participation in courses at FE colleges, i.e. entry into FE tends to be low in areas of high unemployment, and *vice versa*, all other things being equal (Tables 4.8 and 4.9). These results are broadly consistent with raw figures on unemployment and educational participation at local authority level in Great Britain (see, for example, DfEE, 1995). In contrast, however, the coefficient on the unemployment variable in the models of school participation is positive, although statistically insignificant. These different findings for the different types of 'full-time education' may go some way to explaining why the existing microeconomic empirical literature is somewhat ambiguous about the relationship between local unemployment and educational participation (see, for example, Rice 1987 and Micklewright, Pearson and Smith, 1990 for differing results). In particular, it may be that because the two main constituent activities of school and FE have been pooled in most empirical studies, this may have prevented the underlying relationships from becoming evident in standard micro models.

An alternative model includes a full range of TTWA dummy variables (Model B2 in Appendix 4C). This shows that participation in full-time education generally tends to be lower in the urban areas of Belfast and Derry where unemployment is higher. This is important because it suggests that the negative coefficient on unemployment rate terms in these and similar models of educational participation can be explained, at least in part, in terms of an 'urban effect' and not the effect of local labour demand *per se*. For example, it might reflect something of the culture in urban areas which, in many cases may be more fragmented than in rural areas, and is likely to be more tolerant of young people leaving full-time education at the earliest possible opportunity. Evidence consistent with this has been found in a qualitative study conducted in London, in which high early school leaving rates in inner city areas were attributed, not only to high unemployment, but also to a range of social factors including a high incidence of crime (Christie and Rolfe, 1992).

Other Influences on Educational and Labour Market Outcomes

Girls are more likely than boys to remain in full-time education, and Catholics are more likely to stay on than Protestants, *ceteris paribus*. These findings are consistent with evidence relating to gender and ethnic background from the microeconomic studies of educational participation in Great Britain. Two main hypotheses can be put forward to explain the influence of gender and religion: firstly, it is possible that some kind of 'discouraged worker' effect operates for young women and young Catholics. According to such arguments, opportunities in the labour market for these young people are lower than for their male and Protestant counterparts, and so they are encouraged to stay on in full-time education as a means of avoiding subsequent labour market disadvantage. Secondly, and related to this, it could be argued that women and Catholics recognise that they are likely to be disadvantaged in the labour market and so, in order to equip themselves to compete effectively, they choose to stay on in full-time education after the post-compulsory age. Such arguments are essentially 'human capital' type arguments.

Most of the family background variables are statistically insignificant in the models. However, there is some evidence that young people with employed parents, particularly those with employed mothers, are more likely to remain in full-time education. This can be explained, firstly, in terms of an income effect, i.e. young people with employed parents can afford to remain in full-time education because there is no necessity for them to begin to contribute to household income. Secondly, the parental employment variables may reflect something of the attitudes and tastes towards education; for example, employed parents are more likely to have gone through some form of post-compulsory education themselves, and so are more likely to encourage their offspring to do so.

The Choice Between Employment and Vocational Training

It is clear from the results presented in Tables 4.8 and 4.9 that neither the school performance nor the personal characteristics variables had a significant influence on the chances of entering employment, as opposed to the default category of vocational training or unemployment. This was surprising because, *a priori*, we might expect those who entered employment post-16 to have more favourable school and family

background characteristics than their counterparts who entered training or unemployment. However, it is important to recognise that within the category of vocational training there is a good deal of heterogeneity which, unfortunately, could not be investigated here on account of sample size limitations. For example, although a unified programme was followed, vocational training could be based at a number of locations, including government training centres and FE colleges. Notwithstanding the sample size problems, simple crosstabulations suggest that young people on training courses based at a training centre had slightly less favourable characteristics than those who entered employment (e.g. 57 per cent of them got no GCSEs in Year 12, compared to 53 per cent of those who entered employment); young people on training courses at FE colleges, however, seemed to have slightly more favourable characteristics (e.g. only 46 per cent of these young people got no GCSEs grades A-C at Year 12). It is likely, therefore, that the prior expectation of young people who entered employment having more favourable characteristics than the default group, applies to some groups of young people in training, but not others. Unfortunately, sample size limitations meant that this heterogeneity of those in full-time training could not be examined, and so some of the differences between those in employment and those in training have been lost in the aggregation. It is worth noting, however, that although this is likely to account for some of the lack of significance in the results for young people in employment, other research suggests that the differences between these young people and those in training are still likely to be relatively small. For example, Andrews and Bradley (1997) found that amongst young people in Lancashire, the characteristics of those who entered vocational training were much closer to those who entered employment compared to, for example, those who stayed on at school.[21]

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[21] Note also that in the Cramer-Ridder test for the pooling of employment and training/unemployment, the test statistic was greater than the critical value, but by a much smaller amount than in the corresponding test for the pooling of the school and FE outcomes (see Appendix 4A).

4.7 CONCLUSION

This chapter has presented a microeconomic analysis of the factors which influence post-compulsory participation in education in Northern Ireland, focusing on the role of school performance measures, but also investigating other factors such as local economic conditions, gender, religion and family background. The results relating to the role of school performance were broadly consistent, both with prior expectations, and with the results of a similar study conducted recently in GB (Cheng, 1995). Young people from schools which perform relatively well, in terms of overall examination performance and attendance rates, are generally more likely to remain in full-time education, all other things being equal. Although the overall size of the effects were relatively modest, it should be borne in mind that they represent the 'direct' effect of school performance, after having controlled for all other observed variables, including the examination performance of the young people themselves. It was argued that this can perhaps be best explained in terms of unobserved cultural factors associated with high performing schools which encourage staying on. It was interesting that the school performance measures, and indeed some of the other explanatory variables, impacted differently on the two main components of full-time education, namely school and FE college. This, in a sense, substantiates the decision to model the four main post-16 destinations separately, in contrast to the more common practice of estimating binary choice models for participation in the broad category of full-time education.

In terms of the other influences on staying on, the results are generally consistent with those of similar studies which have been conducted in GB and elsewhere. For example, higher participation rates were found amongst young women and Catholics, and these findings are consistent with both discouraged worker and human capital type arguments. Similarly, it was found that a broadly negative relationship existed between local unemployment rates and staying on, although much of this could be explained in terms of the coexistence of high unemployment and low staying on rates in the urban areas of Belfast and Derry.

APPENDIX 4A: TESTING FOR THE POOLING OF STATES

The test suggested by Cramer and Ridder (1991) is a test of the difference between the likelihoods in an aggregated model (i.e. when the different states are pooled together) and a disaggregated model (i.e. when the different states are modelled separately). The null hypothesis is that the separate states which are candidates for pooling have the same regressor coefficients apart from the intercept, i.e. that $\beta_{S1} = \beta_{S2} = \beta_S$, where β_{S1} and β_{S2} are the regressor coefficients (except for the intercept) for the disaggregated model, and β_S is the equivalent for the aggregate model. The test statistic is given by:

$$LR = 2\left\{\left(\log L^d - \sum_j n_{sj} \log n_{sj}\right) - \left(\log L^a - n_s \log n_s\right)\right\}$$

where

s refers to the pooled state (e.g. 'full time education')

j refers to the separate states within s (e.g. school and further education within the broad group of 'full time education')

n_s is the number of sample observations in the pooled state s

n_{sj} is the number of sample observations in each of the separate states j (note that $\sum_j n_{sj} = n_s$)

L^d is the unconstrained log likelihood in the disaggregated model (i.e. the logit model for the probability of being in states j)

L^a is the unconstrained log likelihood in the aggregated model (i.e. the logit model for the probability of being in states s)

LR is asymptotically chi-squared distributed. The degrees of freedom are given by the number of coefficient restrictions being tested. The information required on sample sizes and likelihoods, along with an example of the derivation of the test statistic, are given in the tables below

Population Proportions and Sample Proportions

	Secondary School Pupils only			Grammar and Secondary School Pupils		
	Popln %	Sample %	Sample n	Popln %	Sample %	Sample n
Education (school / FE)	53.8	55.1	456	68.2	59.6	584
Not in Education	46.2	44.9	371	31.8	40.4	396
	100.0	100.0	827	100.0	100.0	980
School	27.6	15.1	125	46.8	20.8	204
FE	26.2	40.0	331	21.4	38.8	380
Not in Education	46.3	44.9	371	31.8	40.4	396
	100.0	100.0	827	100.0	100.0	980
Labour Market (emp, YTP, unemp)	46.2	44.9	371	31.8	40.4	396
Education	53.8	55.1	456	68.2	59.6	584
	100.0	100.0	827	100.0	100.0	980
Employment	5.2	14.5	120	3.7	13.0	127
YTP/Unemp	41.1	30.4	251	28.1	27.4	269
Education	53.8	55.1	456	68.2	59.6	584
	100.0	100.0	827	100.0	100.0	980

The Cramer-Ridder Tests Statistic: Constituent Elements and Critical Chi-Squared Values (Secondary School Pupils)

	$\log L^d$	$\log L^a$	$\sum n_s \log n_s$	$n_S \log n_S$	LR	k	χ^2
Test for pooling of School and Further Education							
Aggregate Model y=1 if young person at School or in FE y=0 otherwise *Disaggregate Model* y=2 if young person at School y=1 if young person in FE y=0 otherwise	-721 8	-474 5	2524 0	2791 9	41 2	13	5.89
Test for pooling of Employment and YTP/Unemployment							
Aggregate Model y=1 if young person in emp, YTP/ unemp y=0 otherwise *Disaggregate Model* y=2 if young person in emp y=1 if young person in YTP/Unemp y=0 otherwise	-701 1	-474 5	1961 4	2194 9	13 8	13	5 89

Notes: As outlined above, the degrees of freedom are given by the number of coefficient restrictions being tested. The figures contained in the first table are based on equations which consist of thirteen explanatory variables (excluding the constant term). Since the test is being conducted of whether two states (e.g. school and Further Education) can be combined, there are thirteen degrees of freedom. YTP refers to the Youth Training Programme, which was the main vocational training scheme at the time of the survey.

APPENDIX 4B: CROSSTABULATIONS

Grammar and Secondary School Pupils

	School	FE	Employment	YTP/Unemp
School Variables				
% Year 12 pupils with 5+ GCSEs (A-C)				
- less than 21%	24.2	21.1	6.3	49.1
- 21 - 40%	28.3	29.1	6.2	37.2
- more than 40%	72.8	16.4	1.8	9.0
Attendance rate				
- less than 91%	30.3	19.0	6.2	44.5
- 91% or more	56.3	22.6	2.8	18.2
% school leavers in unknown or other destination				
- less than 10%	49.0	22.4	3.1	25.5
- 10% or more	39.6	17.5	7.2	35.7
School Type				
- grammar	82.0	13.4	0.4	4.2
- secondary / other	27.3	25.8	6.0	40.9
Other Variables				
Catholic	51.3	19.6	3.4	25.7
non-Catholic	41.8	23.4	4.7	30.1
Female	53	23	3	21
Male	41.5	20.4	4.6	33.5
No older siblings	56.5	20.2	2.9	20.4
1-2 older siblings	43.6	20.6	4.2	31.5
3+ older siblings	32.6	27.0	6.3	34.1
No younger siblings	38.8	22.9	4.8	33.5
1-2 younger siblings	51.5	21.9	3.6	23.0
3+ younger siblings	47.6	17.2	4.0	31.2
Father employed FT	51.9	22.1	3.3	22.6
Father unemployed / other	38.5	20.0	5.2	36.3
Mother employed FT	54.5	23.6	3.0	18.9
Mother unemployed / other	44.0	20.5	4.4	31.1
Living with father and mother	50.1	20.9	3.4	25.6
Not living with father and mother	31.8	23.2	6.9	38.1
Local unemployment lt 14%	43.1	24.3	3.1	29.6
Local unemployment 14-20%	43.6	27.4	4.5	24.4
Local unemployment 20-26%	61.2	18.1	3.3	17.4
Local unemployment gt 26%	36.0	14.2	5.8	44.0
Belfast DC	39.9	10.1	7.8	42.2
Derry DC	17.8	20.4	3.6	58.2
East	34.3	29.7	3.4	32.6
South	51.8	19.1	3.3	25.7
North	57.1	17.4	3.1	22.4
West	57.8	22.1	4.1	16.0
No GCSEs (A-C)	17.1	14.5	8.1	60.4
1-4 GCSEs (A-C)	21.3	34.7	6.0	38.0
5+ GCSEs (A-C)	78.3	17.6	0.7	3.5

Notes: See Table 4.7 above for variable definitions.

Secondary School Pupils only

	School	FE	Employment	YTP/Unemp
School Variables				
% Year 12 pupils with 5+ GCSEs (A-C)				
- less than 21%	23.6	20.1	6.3	50.1
- 21 - 40%	27.7	28.7	5.8	37.8
- more than 40%	35.0	30.0	6.4	28.6
Attendance rate				
- less than 91%	30.0	19.3	6.3	44.5
- 91% or more	24.1	33.8	5.7	36.5
% school leavers in unknown or other destination				
- less than 10%	23.5	29.2	5.3	42.0
- 10% or more	35.4	18.4	7.7	38.5
Other Variables				
Catholic	28.2	26.0	5.6	40.2
non-Catholic	26.4	25.6	6.5	41.6
Female	36.8	27.8	4.9	30.5
Male	19.5	24.1	7.0	49.4
No older siblings	35.7	26.7	4.8	32.7
1-2 older siblings	22.0	24.3	6.4	47.3
3+ older siblings	25.6	28.0	7.4	39.0
No younger siblings	23.7	24.4	6.7	45.2
1-2 younger siblings	27.2	29.0	5.8	37.9
3+ younger siblings	33.5	20.5	5.6	40.5
Father employed FT	28.0	29.1	5.5	37.4
Father unemployed / other	26.5	21.7	6.7	45.1
Mother employed FT	34.5	29.2	5.1	31.2
Mother unemployed / other	25.1	24.7	6.3	43.9
Living with father and mother	28.8	26.2	5.4	39.7
Not living with father and mother	21.7	24.3	8.6	45.4
Local unemployment lt 14%	26.4	24.5	4.6	44.6
Local unemployment 14-20%	23.8	35.9	6.2	34.1
Local unemployment 20-26%	27.4	29.1	6.9	36.6
Local unemployment gt 26%	31.9	13.9	6.7	47.5
Belfast DC	39.4	9.4	8.1	43.1
Derry DC	20.9	17.5	4.2	57.4
East	28.4	27.2	4.1	40.3
South	20.3	29.4	5.6	44.8
North	22.9	26.5	6.3	44.3
West	27.0	34.4	7.8	30.7
No GCSEs (A-C)	16.2	14.1	8.2	61.5
1-4 GCSEs (A-C)	20.6	31.2	7.0	41.2
5+ GCSEs (A-C)	53.5	36.5	1.4	8.6

Notes: See Table 4.7 above for variable definitions.

APPENDIX 4C: ALTERNATIVE MULTINOMIAL LOGIT MODELS

	Model B1			Model B2		
	Mar Eff	Coef	t	Mar Eff	Coef	t
School						
Constant	0.98	-1.29	-0.30	1.82	1.45	0.34
% of Yr 12 pup with 5+ GCSEs (A-C)	0.0002	0.001	0.203	0.006	0.02	3.49
above, interacted with yp gaining 5+ GCSEs (A-C)	0.01	0.03	2.19			
Attendance Rate	-0.02	-0.01	-0.28	-0.025	-0.04	-0.826
above, interacted with yp gaining 5+ GCSEs (A-C)	-0.01	0.01	0.08			
% of leavers in 'unknown' / 'other'	0.006	0.02	1.37	0.005	0.015	1.00
above, interacted with yp gaining 5+ GCSEs (A-C)	0.003	0.0004	0.008			
Catholic	0.01	0.21	1.021	0.058	0.38	1.75
Female	0.16	0.92	4.63	0.146	0.85	4.26
Number of older Siblings	-0.02	-0.06	-0.93	-0.0153	-0.058	-0.92
Number of Younger Siblings	0.02	0.07	0.93	0.03	0.086	1.097
Father Employed full time	-0.07	-0.20	-0.93	-0.068	-0.20	-0.89
Mother Employed full time	0.12	0.62	2.52	0.115	0.59	2.40
Living with father and mother	0.14	0.39	1.52	0.139	0.37	1.41
Local Unemployment Rate	0.01	0.03	1.58			
Belfast DC				0.172	0.17	0.47
East				-0.021	-0.19	-0.64
Derry DC				-0.078	-1.03	-2.61
South				-0.15	-0.79	-2.44
North				-0.08	-0.99	-2.78
1-4 GCSE Passes (A-C)	-0.02	0.48	2.15	-0.049	0.39	1.65
5+ GCSE Passes (A-C)	1.08	1.00	0.08	0.49	3.39	9.97
FE College						
Constant	-1.52	-9.51	-1.75	-2.21	-10.97	-2.14
% of Yr 12 pup with 5+ GCSEs (A-C)	-0.00003	0.001	0.13	-0.004	-0.011	-1.63
above, interacted with yp gaining 5+ GCSEs (A-C)	-0.006	-0.01	-0.60			
Attendance Rate	0.02	0.09	1.61	0.026	0.11-	2.02
above, interacted with yp gaining 5+ GCSEs (A-C)	0.007	0.06	0.45			
% of leavers in 'unknown' / 'other'	-0.005	-0.01	-0.47	-0.005	-0.015	-0.88
above, interacted with yp gaining 5+ GCSEs (A-C)	-0.004	-0.02	-0.44			
Catholic	0.04	0.34	1.53	0.01	0.31	1.35
Female	-0.03	0.48	2.32	-0.02	0.48	2.30
Number of older Siblings	0.009	0.01	0.22	0.007	-0.002	-0.022
Number of Younger Siblings	-0.02	-0.03	-0.43	-0.02	-0.05	-0.59
Father Employed full time	0.05	0.13	0.57	0.043	0.10	0.45
Mother Employed full time	-0.03	0.28	1.10	-0.024	0.27	1.06
Living with father and mother	-0.10	-0.28	-1.11	-0.103	-0.31	-1.21
Local Unemployment Rate	-0.01	-0.03	-1.83			
Belfast DC				-0.18	-0.88	-2.12
East				0.024	-0.05	-0.18
Derry DC				-0.084	-1.22	-2.83
South				0.063	-0.24	-0.68
North				-0.074	-1.13	-3.059
1-4 GCSE Passes (A-C)	0.13	1.04	4.44	0.16	1.13	4.62
5+ GCSE Passes (A-C)	-0.36	-2.53	-0.21	0.074	2.75	7.39

Appendix 4C continued

Employment						
Constant	-0.07	-5.28	-0.68	-0.04	-3.21	-0.39
% of Yr 12 pup with 5+ GCSEs (A-C)	0.00001	0.001	0.12	-0.0002	0.002	0.14
above, interacted with yp gaining 5+ GCSEs (A-C)	-0.0003	0.007	0.23			
Attendance Rate	0.009	0.03	0.35	0.0003	0.02	0.21
above, interacted with yp gaining 5+ GCSEs (A-C)	0.0009	0.32	0.94			
% of leavers in 'unknown' / 'other'	-0.0004	0.04	1.43	0.001	0.04	1.50
above, interacted with yp gaining 5+ GCSEs (A-C)	-0.01	-0.019	-0.21			
Catholic	-0.01	-0.19	-0.46	-0.02	-0.23	-0.57
Female	-0.01	0.29	0.78	-0.008	0.31	0.85
Number of older Siblings	0.004	0.084	0.78	0.003	0.06	0.55
Number of Younger Siblings	-0.0003	0.02		-0.0004	0.02	0.17
Father Employed full time	0.009	0.21	0.17	0.01	0.24	0.60
Mother Employed full time	-0.02	-0.21	0.52	-0.016	-0.13	-0.28
Living with father and mother	-0.01	-0.31	-0.43	-0.015	-0.39	-0.82
Local Unemployment Rate	0.0001	0.009	-0.66			
Belfast DC				-0.03	-1.00	-1.60
East				-0.03	-1.20	-2.20
Derry DC				-0.02	-1.41	-1.87
South				-0.01	-0.87	-1.39
North				-0.01	-1.30	-1.86
1-4 GCSE Passes (A-C)	-0.01	0.17	0.44	-0.01	0.014	0.04
5+ GCSE Passes (A-C)	-0.92	-29.3	-0.94	-0.07	0.29	0.42
Log likelihood		-888			-899	
Log likelihood (constant slopes)		-1140			-1140	
Chi-squared		504			502	
Pseudo R^2		0.22			0.22	

Notes See notes to Tables 4.8 and 4.9

CHAPTER 5

CAREERS GUIDANCE, PSYCHOMETRIC TESTING AND UNEMPLOYMENT AMONGST YOUNG PEOPLE

5.1 INTRODUCTION

The economic benefits of effective careers guidance for young people are increasingly being recognised. For example, in the recent White Paper *Competitiveness: Helping Business to Win*, better careers education and guidance was described as one of the ten 'key new engines of change' which, it was hoped, would help to transform standards of education and training in Britain (HMSO, 1994, p49). The White Paper also announced additional public investment in the Careers Service of £87m over the three year period 1995-97; this represented around one half of the existing Careers Service budget for the period 1994/95. Psychometric testing is one of a number of measures, or 'interventions', which are frequently used in careers guidance amongst young people in the UK. The main aim of testing is to provide the young person and the guidance practitioner with objective assessments of various characteristics of the young person, for example, vocational interest, abilities and personality traits, which are likely to have an important impact on career decisions. Tests are generally administered during the final years of compulsory education. Once sat, the results are collated and the information is used to help young people make appropriate choices about education and training options post-16. In Northern Ireland around two fifths of Year 12 pupils sat psychometric in the school year 1994/95. Similarly, in a recent survey of the extent of psychometric testing in England, 84 per cent of Careers Services were found to use psychometrically based ability tests as part of the guidance process in 1995, compared to 34 per cent in 1992 (Grimsell, 1996).

In January 1996 the Training and Employment Agency commissioned a research project on the use of psychometric testing in Northern Ireland. The main aim of the study was to assess whether test usage in Northern Ireland was significantly

enhancing the overall careers guidance process amongst young people of school leaving age. An important strand of the research involved using existing microeconomic survey data to assess the impact of testing on labour market outcomes, particularly unemployment, amongst young people. This chapter presents the main findings from this part of the research.

The outline of the chapter is as follows: Section 2 discusses the overall aims, objectives and definitions of careers guidance and psychometric testing. Section 3 reviews the existing careers guidance literature and, in particular, those studies which have investigated the impact of psychometric testing. Section 4 discusses some issues relating to the data. Section 5 discusses the econometric methodology used in the analysis, focusing on the problem of sample selection within the context of modelling binary dependent variables. Section 6 presents the main findings, and Section 7 summarizes the results.

5.2 BACKGROUND

5.2.1 The Aims and Objectives of Careers Guidance

Careers Guidance aims to help young people make well informed and realistic choices about education and training options post-16. In particular, it aims to ensure that young people enter forms of education, training or employment which are appropriate, given their interests, aspirations and abilities. This role of Careers Guidance has become more important in recent years because career choices for young people post-16 have generally become more complex. For example, the range of vocational qualifications which young people can study has proliferated, and now includes the relatively new NVQs and GNVQs, as well as the more traditional qualifications awarded by bodies such as City and Guilds, RSA and BTEC. Similarly, recent institutional changes throughout the UK have had the effect of making education and training providers compete much more vigorously with each other to attract young people post 16.

The available evidence suggests that many young people throughout the UK continue to make inappropriate choices about which education or training courses to follow post-16. For example, a recent study in England and Wales found that the proportion of pupils failing to complete the course they embarked on was around 13 per cent for A level courses and 18 per cent for vocational training courses (HMSO, 1993). Similarly, the drop-out rate from A level courses in Northern Ireland is around 15 per cent (DENI/T&EA, 1995b). The costs of this to the young people and the relevant institutions are likely to be considerable. Although a range of factors are likely to contribute to drop-out from academic and vocational courses, the provision of more effective careers guidance seems likely to be one way of ameliorating the problem.

Whilst there is no universally recognised definition, the following seems to capture most of the main aspects of guidance:

> *'Careers guidance is a client centred process designed to assist individuals to make relevant and realistic decisions about education, training and/or employment. It includes helping them towards an accurate assessment and understanding of their interest, aptitudes, personality, needs, values and priorities so that they may be able to make appropriate decisions.'* (CBI, 1994 p.15)

In order to clarify this definition, it is helpful to break down the overall aim of guidance into a number of specific objectives. This has been done in reviews of guidance conducted in England and Wales by the Confederation of British Industry (CBI, 1994), and in Northern Ireland by the Department of Education and Training and Employment Agency (DENI/T&EA, 1995b). Careers guidance ought to provide young people with help to: (a) clarify their interest in broad occupational areas or in specific jobs, (b) appreciate their abilities and aptitudes and relate these to occupations, (c) understand all available relevant career options, together with the nature of the organisations offering them, (d) participate effectively in job search (e.g. preparing CVs, developing interview techniques etc), (e) reach decisions on occupational goals and the routes to their achievement, (f) draw up an up-to-date record of achievement and an individual action plan, (g) develop knowledge of further sources of information and how to tap into them and (h) make a successful transition between education, training and the world of work

5.2.2 What is Psychometric Testing?

Psychometric testing is one of a number of measures, or 'interventions', which are typically used in the careers guidance process.[22] The main aim of testing is to provide the young person and the guidance practitioner with objective assessments of various characteristics of the young person which are likely to have an important impact on career decisions. In particular, psychometric tests used in guidance tend to focus on three main characteristics, namely (a) abilities, (b) vocational interests, and (c) personality. A wide variety of psychometric tests are available which can be used in careers guidance amongst young people (see Loewenthal, 1996 for a

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[22] Other measures include (a) the individual careers guidance interview, (b) group sessions or careers guidance workshops and (c) self-help measures such as the provision of effective and up-to-date careers information (e.g. careers libraries) and computer aided guidance.

comprehensive review). The tests are designed by organisations which specialise in different aspects of educational psychology and generally involve a series of questions, arithmetic and verbal reasoning type exercises (see Appendix 5A for some examples). They are generally administered to young people during their final years of compulsory education. The most widely recognised benefit of psychometric testing lies in its ability to provide objective information which can be used in the guidance process. This has become more important in recent years because of the increased sensitivity surrounding issues of equal opportunities and fair employment.

5.3 LITERATURE REVIEW

5.3.1 Previous Reviews of the Careers Guidance Literature

Studies of the impact of careers guidance on 'learning outcomes' (e.g. self awareness, opportunity awareness and decision making skills), and labour market outcomes (e.g. job search intensity, unemployment and job tenure), proliferated during the 1970s and 1980s. Most of these studies were based on an experimental methodology in which a group of young people (the experimental group) were exposed to a particular guidance 'intervention', and their subsequent outcomes were compared to those who were not exposed (the control group). Reviews of the UK literature are given in Watts and Kidd (1978), Clarke (1980), Killeen and Kidd (1991) and Killeen, White and Watts (1992). The broad conclusions of these reviews were that, with respect to both learning outcomes and labour market outcomes, careers guidance had positive, albeit in many cases modest, effects. The main methodological limitation of these studies, however, is that very few of them were based on multivariate analysis, and so could not control for background factors which may have been correlated with both the intervention and the outcome.

5.3.2 Early Studies of Psychometric Testing

The first studies to focus specifically on the value added from psychometric testing were Allen and Smith (1932) and Hunt and Smith (1944), both conducted amongst samples of school leavers in Birmingham. Young people who received traditional forms of guidance (e.g. based on interviews and school reports) were compared with those who received traditional guidance *and* sat psychometric tests. In particular, the young people were followed up two years after receiving the guidance, and labour market outcomes were compared for those who had entered the recommended occupations. It was found that young people who sat psychometric tests generally had more favourable labour market outcomes such as longer job tenure. [23]

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[23] The original sample size in Allen and Smith (1932) was 328, and in Hunt and Smith (1944) it was much larger at 3,000. The young people surveyed in Hunt and Smith (1944) were also followed up four years after the original treatment, although the attrition rate by this time (47 per cent) was relatively high.

5.3.3 Studies Conducted in the 1970s

Interest in the effects of psychometric testing was revived in the UK during the 1970s, probably as a result of the recasting of the role of guidance in terms of its influence on learning outcomes as opposed to labour market outcomes. A number of UK studies conducted around this time, which investigated the influence of psychometric testing on learning outcomes, are reviewed in Appendix 5B. Generally speaking, all of the studies found that psychometric testing was of some use in the guidance process, although in many cases the effects were not particularly significant. An important issue which was debated in this literature related to the relative merits of routine or 'blanket' testing, as opposed to selective testing. Although the issue remained unresolved at the time, the current thinking is that 'blanket' testing is inefficient, and that testing is most useful when the young people who are chosen to sit the tests are carefully selected beforehand using a standard set of selection criteria (Lay, 1994).[24] This is an important issue for this thesis and will be returned to below.

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[24] For example, testing is recommended amongst young people who have difficulty expressing preference for any occupation or occupational group, and in situations where the client's preferences or expectations are unrealistic in relation to their level of educational achievement.

5.3.4 The Results of US Meta-Analytical Studies

Meta-analysis is a technique, developed in the 1970s primarily in the psychological literature, which reviews and integrates existing research results, in order to produce a fresh set of calculations which summarise the findings in the existing literature (see Hunter and Schmidt, 1990). Within the present context, a number of meta-analytical studies have quantified the findings of the existing literature relating to the relative strength of the effects of various careers guidance interventions. The best known of these is Oliver and Spokane (1988) which reviewed fifty-eight US studies which were focused mainly on learning outcomes. Whilst all of the main guidance interventions, including psychometric testing, were found to have positive effects, the overall effects of class talks were found to be considerably larger than any of the other guidance interventions. In terms of the impact per hour, however, the most beneficial effect was found to be for individual careers guidance interviews and, of particular interest for the present study, individual sessions which interpreted the results of psychometric tests. It should be stressed, however, that the vast majority of studies which were reviewed measured the impact of guidance in terms of learning outcomes as opposed to labour market outcomes.

5.3.5 Where Does the Existing Literature Leave Us?

By way of summary, a number of important points are worth making about the existing literature: firstly, the literature suggests that all of the major careers guidance interventions, including psychometric testing, have a positive impact on both learning outcomes and labour market outcomes, although in many cases the effects seem to be relatively small and insignificant. Secondly, it is clear that most of the studies which have focused specifically on psychometric testing have been concerned with their effect on learning outcomes as opposed to labour market outcomes. The main UK studies which, like the current analysis, focus on labour market outcomes, were conducted in the 1930s and 1940s, since which time the structure of the youth labour market has been transformed. Thirdly, most existing studies of careers guidance and psychometric testing have not been based on multivariate techniques and so have not been able to control for the potential inter-correlations between the background characteristics of the young people, the receipt of the various interventions and the outcomes being investigated. The present analysis is of interest, therefore, because it

represents one of the few attempts in the literature to provide quantitative estimates of the labour market impact of testing, using up-to-date multivariate techniques and standard microeconomic survey data.

5.4 ECONOMETRIC METHODOLOGY

5.4.1 The Basic Model

As outlined above, the main aim is to investigate the influence which psychometric testing has on the young people's experiences of unemployment between the ages of 16 and 18. The analysis is not particularly concerned with any specific aspect of unemployment such as inflows, outflows, or the duration of spells. Rather, the main aim is to assess the impact of testing on the overall experience of unemployment. In order to do this, it was decided to utilize the work-history element of the data and investigate the impact of testing on three separate indicators of unemployment, each of which represents a different aspect of the unemployment experience. Underlying this approach was the idea that the experience of unemployment amongst young people aged 16 - 18 was likely to have a negative impact on the success with which they make the transition into the adult labour market (Gershuny and Marsh, 1994; Narendranathan and Elias, 1993).

The variables related to, (a) whether or not the young person experienced a long spell of unemployment over the period 1993-95, (b) whether or not the young person was unemployed at the end of the period (Spring 1995), and (c) whether or not the young person had *any* experience of unemployment over the period. These variables measure different aspects of the unemployment experience. *A priori*, we would expect the experience of long-term unemployment to be a more important negative labour market experience than being unemployed in June or experiencing any spell of unemployment. Indeed, the original research on youth unemployment in Northern Ireland (Armstrong, 1997c), found that the significant minority of young people who experienced long spells of unemployment was the most important 'problem group' from a policy point of view. In spite of this, the other indicators of unemployment were included in the

analysis, since the concern was not specifically with long-term unemployment, but rather with the overall experience of unemployment between the ages of 16 and 18.[25]

The dependent variables are expressed in terms of (1,0) dummy variables as:[26]

y=1 if young person experienced a long spell of unemployment over the period (i.e. a spell which lasted 6 months or more)
y=0 otherwise

y=1 if young person was unemployed at the end of the period (Spring 1995)
y=0 otherwise (1)

y=1 if young person had any experience of unemployment over the period
y=0 otherwise

The conventional specification of binary choice models involves assuming the existence of a continuous, latent and unobservable dependent variable, say y*, which within the present context indicates the propensity to experience each different aspect of unemployment. Therefore, the basic model for each of the dependent variables can be expressed in terms of the following regression relationship:

$$y^* = \alpha z + \beta x_1 + u_1 \text{ where } y=1 \text{ if } y^*>0 \text{ and } y=0 \text{ if } y^* \leq 0 \quad (2)$$

where

z is a (1,0) variable indicating whether or not the young person sat the tests

x_1 is a vector of other variables which affect y* (e.g. gender, religion, local labour market conditions etc.)

α is a coefficient, β is a coefficient vector, and u_1 is a random disturbance term

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[25] Of course, the three indicators of unemployment outlined above are correlated with each other. For example, all of those who experienced a long spell of unemployment had at least one spell of unemployment. Likewise, around three quarters of those who were unemployed in June 1995 also experienced a long spell of unemployment between 1993 and 1995. Note that very few young people had multiple spells of unemployment over the period 1993-95 and so the number of spells of unemployment has not been modelled in the analysis.

[26] Throughout the following notation, the subscript i has been dropped for convenience.

5.4.2 The Sample Selection Problem

Estimation of this kind of model presents a standard sample selection type problem, similar, for example, to that which has been addressed extensively in the literature on the labour market impact of youth training. This arises from the fact that young people who sit the psychometric tests are, *a priori*, not likely to be a random subsample of the population. Rather, there are likely to be unobservable characteristics such as, for example, 'motivation', which are correlated both with the 'treatment' (i.e. whether or not the tests were sat), and the labour market outcome being investigated (in this case the young person's experience of unemployment). For example, poorly motivated young people might be less likely to sit the psychometric tests because they are indifferent about their future labour market prospects, and so they may fail to turn up on the day of the tests. Alternatively it may be the case that well motivated young people are less likely to sit the tests for a number of reasons: firstly, since such young people generally remain in full-time education, and since the tests are mainly designed to help those pursuing a vocational path, they may not be asked to sit the tests by Careers Officers. Secondly, since well motivated young people are likely to be reasonably clear about the transition path which they are going to take after 5th form, they may not see the point in sitting the psychometric tests and so may fail to turn up on the day of the tests. The existence of such correlations caused by the presence of unobservable variables, means that standard single equation estimates of the effects of the particular 'treatment' will be biased.

5.4.3 Sample Selection and Binary Dependent Variables

In the literature on youth transitions, the issue of sample selection bias has received widespread attention in terms of modelling the effects of participation in the Youth Training Scheme (YTS) on subsequent earnings in employment (e.g. Main and Shelly, 1990; Whitfield and Bourlakis, 1991; Dolton, Makepeace and Treble, 1994B; O'Higgins, 1994; Green, Hoskins and Montgomery, 1996; Payne, 1995a; Andrews, Bradley and Upward, 1997). This has generally been done using the model suggested by Heckman (1979). However, in studies which have modelled binary outcomes such

as employment or unemployment probabilities, the issue has not often been dealt with explicitly.[27]

A number of studies have attempted to take account of the selection problem within the context of modelling a binary outcome. Three of these studies are from the youth transitions literature, and one study (Green, 1993) relates to the effects of union membership on the receipt of training. The two main modelling strategies have been, (a) to estimate a bivariate probit model (O'Higgins, 1994 and Green, 1993), and (b) to include a Heckman-type selectivity correction factor as a regressor in an otherwise standard logit or probit model (e.g. Main, 1987b and Payne, 1995a). O'Higgins has shown that within the context of non-linear models such as logit and probit models, the Heckman type correction for selectivity is not valid, and that the bivariate probit is the correct model to use. This is the approach which has been adopted in the present paper when modelling binary indicators of the incidence of unemployment.[28]

5.4.4 Basic Specification of the Bivariate Probit Model

In order to illustrate the derivation of the bivariate probit model, consider again equation (2), along with a corresponding 'selection equation' (3):

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[27] For example, in Main and Shelly (1990) and Whitfield and Bourlakis (1991), whereas the effects of YTS on wages is estimated using standard Heckman-type corrections, the effects of YTS on subsequent employment probabilities are estimated using standard single equation probit models in which a dummy for YTS participation is one of a number of explanatory variables. Note that Main and Raffe (1983), Main (1985) and Main (1987a) also estimate standard single equation OLS or probit models for employment probabilities, in which participation in YTS (or the Youth Opportunities Programme) are dummy explanatory variables.

[28] The bivariate probit is a standard parametric model which dates back almost twenty years. It is worth noting that in recent years a non-parametric literature has emerged, part of which has dealt with the estimation of treatment effects using non-experimental data (see, for example, Manski, 1991 and 1995). One of the key themes underlying such methods is that, without making the various assumptions integral to parametric models such as the bivariate probit, it is possible to produce 'local estimates' of treatment effects, which are essentially a series of bounds within which the effect is estimated to lie. Although such non-parametric methods represent an extremely important development in the empirical literature, some effort is still required to make them simpler to implement, and this has to be coupled with a certain cultural shift in the attitudes of researchers towards the estimation of such models and the presentation of their results. Within the present context it is also worth noting that non-parametric methods generally require a sample size considerably larger than that being used in the present analysis.

$y^* = \alpha z + \beta x_1 + u_1$ where $y=1$ if $y^*>0$ and $y=0$ if $y^* \leq 0$ (2)

$z^* = \gamma x_2 + u_2$, where $z=1$ if $z^*>0$ and $z=0$ if $z^* \leq 0$ (3)

where

z^* is a continuous latent variable indicating the propensity to sit the tests

x_2 is a vector of explanatory variables which affect z

γ is a vector of coefficients, and u_2 is a random disturbance

In the bivariate probit model, the errors u_1 and u_2 are assumed to have a standard bivariate normal distribution with a correlation typically given as ρ, i.e

$$\begin{pmatrix} u_1 \\ u_2 \end{pmatrix} \sim N \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix} \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix} \right] \quad (4)$$

Consistent estimates of the model are derived by maximising the following log likelihood with respect to α, β, γ and ρ:

$$\begin{aligned} \Sigma \{ & \; y \; z \log \Phi_2 \; [\gamma x_2, \alpha z + \beta x_1, \rho] \; + \\ & (1-y) \; z \log \Phi_2 \; [\gamma x_2, -\alpha z - \beta x_1, -\rho] \; + \\ & y \; (1-z) \log \Phi_2 \; [-\gamma x_2, \beta x_1, -\rho] \; + \\ & (1-y) \; (1-z) \log \Phi_2 \; [-\gamma x_2, -\beta x_1, \rho] \; \} \end{aligned} \quad (5)$$

where Φ_2 is the bivariate normal distibution function.[29]

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[29] Note that following Greene (1997, p907f), the notational convention is to use a subscript 2 for the bivariate normal distribution function. When the subscript is omitted, Φ denotes the univariate normal distribution. In all other cases, the subscript 2 refers to the explanatory variables or the error in the selection equation (3).

5.4.5 Identification Issues

The model outlined above is identified so long as there is at least one element of the vector x^* which is not in the vector x_i (Maddala, 1983). Existing studies which have used this model have tended not to discuss in detail the reasons why certain variables have been chosen as identification variables. The key thing is that we need at least one variable which, *a priori*, is understood to influence the dependent variable modelled in the selection equation, but not the dependent variable in the main equation. The variable used in the present analysis relates specifically to the schools which the young people attended, and gives the proportion of all 5th form pupils in the school who sat the psychometric tests. This was taken from a survey of schools conducted in 1994/95 in which Careers Officers in each of the local T&EA offices throughout Northern Ireland were asked to specify (a) the total number of male and female pupils in each post-primary school in their area, and (b) the total number of male and female pupils who sat the psychometric tests in each school. This information was available, therefore, for the schools attended by all of the young people in the sample. The variable is taken in the present analysis to represent school-based factors which influence the incidence of testing. Generally speaking, it will reflect the preferences of the school pupils, staff and management, towards testing, and will be determined by aspects of school organization and school culture which influence testing (e.g. the headteacher may refuse to administer tests; there may be a tacit agreement amongst pupils to be absent on the day of the tests; teachers may be reluctant to encourage pupils to sit the tests due to the high educational ethos of the school). One of the main advantages of using this variable is that, since it relates specifically to school-based factors which have a particular influence on testing, it is fairly straightforward to argue that it does not affect the experience of unemployment which is being modelled in the main equation. Perhaps the main disadvantage of using this variable is that it relates to 5th formers

in the school year 1994/95. This is in contrast to the main sample information which is for 1992/93.[30]

5.5 DATA

As outlined in Chapter 3, the basic sample information for the original survey (i.e. the name, address and telephone number of the young person) was provided by careers officers in each of the 31 local T&EA offices. As part of the present research into the effects of psychometric testing, each of the local offices were contacted again in February 1996 and asked to provide further information on the incidence of psychometric testing, relating to each of the 980 young people who were in the original survey. In particular, each of the offices were asked to indicate (a) whether or not the young person sat the psychometric tests, (b) if the young person did not sit the psychometric tests, then why not?, and (c) if the young person did sit the tests, then what were his/her results? Most offices were able to provide this information on all of the young people they were asked about. However, some of the offices were unsure about whether or not some of the young people sat the tests, either because (a) there was no trace of the young person's personal record, or (b) the young person had reached the age of 19 and so their records had been destroyed (Table 5.1). When the final database on the incidence of testing was constructed, it was then matched to the information, outlined above, from the original survey.

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[30] This difference in years means that, for example, in the cases of 'no testing' and '100% testing' there is not a direct correspondence between the information on the incidence of testing taken from the schools and that taken from the main sample. For example, amongst young people who attended schools in which there was a 100 per cent incidence of testing in 1994/95, around one tenth indicated that they did *not* sit the tests in 1992/93. Similarly, amongst young people who attended schools in which no young people sat the tests in 1994/95, around one third indicated that they *did* sit the tests in 1992/93. In spite of these differences, the expectation is that this variable will act as a good proxy for school-based factors which influenced testing in 1992/93.

Table 5.1: The Extent of Psychometric Testing Amongst Secondary School Pupils

		Number in sample	Per cent
Did sit the tests		507	61
Did not sit tests		242	29
Don't know		78	10
of which:	'No trace of Personal record'	53	6
	'Over 19 / Information Destroyed'	13	2
	'Missing'	12	2
Total Sample		827	100

Source: Follow-Up to the Status 0 Survey
Notes: Figures are not weighted and exclude young people who attended grammar schools

Basic descriptive statistics for the other variables used in the analysis are shown in Table 5.2 below.

Table 5.2: Means of Variables used in the Analysis

Variable	Mean
Dependent Variables	
Experienced a Long Spell of Unemployment	0.11
Unemployed in Spring 1995	0.16
Experienced any Spell of Unemployment	0.24
Identification Variable	
Overall Proportion of 5th Form Pupils Tested	55.9 (37.8)
Other Variables	
Catholic	0.49
non-Catholic*	0.51
Female	0.45
Male*	0.55
School Performance - % of Year 12 Pupils with 5+GCSEs (Grades A-C)	26.1 (14.6)
School Performance - Attendance Rate	90.0 (2.6)
School Location - Belfast	0.17
School Location - not in Belfast*	0.83
0-2 GCSE Passes *	0.30
3-4 GCSE Passes	0.11
5-6 GCSE Passes	0.21
7 + GCSE Passes	0.38
Living with Father & Mother	0.80
Not Living with Father & Mother*	0.20
Father employed FT	0.55
Father unemployed / other*	0.45
Mother employed FT	0.24
Mother unemployed / other*	0.76
No. of older siblings	1.4
No. of younger siblings	1.4
Local Youth Unemployment Rate	15.7 (4.0)
Sat Tests	0.68
Did Not Sit Tests*	0.32

Source Status 0 Survey

Notes The figures are weighted and exclude young people who attended grammar schools. Details of the construction of the weighting variables are given in Chapter 3. The figures also exclude young people for whom it was not certain as to whether or not they sat the tests. The raw sample size is 749. For dummy variables, the categories used as the default categories in the econometric models are marked with an asterix. For continuous variables, the standard deviations are given in parentheses. Figures on school performance are taken from DENI (1994b). Local youth unemployment rate figures are claimant-based for 18-24 year old males and females and relate to October 1993. GCSE passes include any passes at grades A-G. The 'identification variable' is the variable used to identify the bivariate probit model; the issue of identification is discussed in Section 5 below.

5.6 RESULTS

5.6.1 Who Sits Psychometric Tests?

Gender and Religion

The raw figures suggest that girls and Catholics are generally less likely to sit the psychometric tests than their male and non-Catholic counterparts, with the lowest incidence of testing being amongst Catholic girls (Table 5.3). Two main explanations can be given for these effects: firstly, we know that Catholics and females are significantly more likely than their non-Catholic and male counterparts to remain in full-time education after 5th form. Since psychometric tests are mainly used to guide young people with vocational aspirations, testing is generally less likely to be targeted towards Catholics and females. Secondly, it is clear from Table 5.3 that tests are less likely to be offered in Catholic schools. The econometric analysis shows that after accounting for this, and other school-based factors, the independent effects of gender and religion are statistically insignificant (Table 5.9).

Table 5.3: The Extent of Psychometric Testing by Gender and Religion

	Catholic Girl (n=176)	Catholic Boy (n=240)	Non- Catholic Girl (n=192)	Non-Catholic Boy (n=219)
Did sit the tests	43	66	64	70
Did not sit tests	42	24	30	23
of which				
educational reasons	13	8	5	4
tests not offered at school	9	7	6	2
did not attend test sitting	5	2	11	8
other / no reason	15	7	8	9
Don't know	15	11	7	7
ALL	100	100	100	100

Source: Follow-up to the Status 0 Survey
Notes: Figures are weighted. They may not add up to exactly one hundred because of rounding and exclude young people who attended grammar schools.

School Factors

Young people from schools which have a relatively good overall examination performance amongst 5th form pupils are less likely to sit the tests (Table 5.4). This is the case even after controlling for other correlated factors, including the level of qualifications obtained by the young people themselves (Table 5.9). It was argued in Chapter 4 above that school performance measures may be capturing something of

the overall culture of schools, in terms of the characteristics, attitudes and experiences of pupils and teachers. It may be the case, therefore, that the school performance variable measures unobservable cultural attributes of schools which encourage pupils to remain in full-time education. Such schools are likely to discourage the use of testing.

Young people from schools with good attendance records are slightly more likely than their counterparts to sit the tests (Table 5.4). Given that this is the case even after controlling for other factors (Table 5.9), it is likely to reflect the effect of attendance *per se*, i.e. young people from schools with a good attendance record are more likely to be present on the day of testing, and so are less likely not to sit the tests due to absence or some other reason. As expected, young people from schools in which the overall incidence of testing was relatively high, were much more likely than their counterparts to sit the tests (Table 5.5). As discussed above, this variable is likely to capture the preferences of the school pupils, staff and management towards testing, and will reflect aspects of school organization and school culture which specifically influence testing. The fact that the variable is highly significant in the econometric models (Table 5.9) is essential in terms of its role as an identification variable in the model. Young people who attended schools in the Belfast area are significantly less likely to sit the tests than their counterparts from other areas (Tables 5.6 and 5.9). This can be explained mainly in terms of the tests being much less likely to be offered in Belfast schools (Table 5.4).

Table 5.4: The Extent of Psychometric Testing by School Performance

	Examination Performance		*Attendance Rate*	
	less than 20 per cent of pupils with 5+ GCSE passes (n=300)	at least 20 per cent of pupils with 5+GCSE passes (n=527)	less than 90 per cent attendance (n=322)	at least 90 per cent attendance (n=505)
Did sit the tests	67	57	58	63
Did not sit tests	24	32	30	28
of which				
educational reasons	3	10	6	8
tests not offered at school	6	6	9	4
did not attend test sitting	6	7	7	6
other / no reason	9	9	8	10
Don't know	9	10	12	8
ALL	100	100	100	100

Source: Follow-up to the Status 0 Survey
Notes: See notes to Table 5.3.

Table 5.5: The Extent of Psychometric Testing by the Overall Incidence of Testing in the School in 1994/95

	less than one half of 5th form pupils tested in 1994/95 (n=329)	at least one half of pupils tested in 1994/95 (n=498)
Did sit the tests	42	74
Did not sit tests	47	17
of which		
educational reasons	12	4
tests not offered at school	15	-
did not attend test sitting	5	8
other / no reason	15	5
Don't know	12	9
ALL	100	100

Source: Follow-up to the Status 0 Survey
Notes: See notes to Table 5.3.

Table 5.6: The Extent of Psychometric Testing by School Location

	Belfast (n=114)	Western (n=172)	N East (n=225)	S East (n=147)	South (n=169)
Did sit the tests	43	57	68	69	64
Did not sit tests	57	29	18	30	27
of which					
educational reasons	0	10	4	6	15
tests not offered at school	25	3	4	3	-
did not attend test sitting	7	2	7	11	7
other / no reason	25	14	3	10	5
Don't know	3	14	13	5	10
LL	100	100	100	100	100

Source: Follow-up to the Status 0 Survey
Notes: See notes to Table 5.3.

Qualifications

Young people who attained middle ranking qualifications were more likely to sit the psychometric tests than their counterparts (Table 5.7). In the econometric models, the coefficient on the dummy variable for having 5 or 6 GCSE passes is positive and statistically significant at a 5 per cent level (Table 5.9); this is in contrast to the dummy variables for 3-4 GCSEs passes and 7 or more passes which are both statistically insignificant.[31] One important rationale behind the use of testing is to provide relevant information for those young people who are uncertain about which route to take after compulsory schooling. Such uncertainty is likely to be particularly apparent for those young people with a mid ranking ability. Although such young people are technically able to remain in full-time education, they would be less well qualified than most of the young people who do so, and they are also likely to consider the vocational route. It could be argued, therefore that choices about post-16 activities for such young people are generally more difficult than for many other young people, and this is likely to be one of the reasons why they are more likely to sit psychometric tests.

Table 5.7: The Extent of Psychometric Testing by Qualifications

	0-4 GCSE passes (n=331)	5 or 6 GCSE passes (n=184)	7 or more GCSE passes (n=312)
Did sit the tests	59	72	58
Did not sit tests	32	18	33
of which			
educational reasons	6	5	11
tests not offered at school	8	4	5
did not attend test sitting	7	3	8
other / no reason	11	6	9
Don't know	11	9	9
ALL	100	100	100

Source: Follow-up to the Status 0 Survey
Notes: See notes to Table 5.3. GCSE passes include any passes at grades A-G

[31] It should be noted that since GCSE examinations were sat at the end of the school year *after* psychometric testing, exam results should, strictly speaking, not be included as explanatory variables. In the models of the incidence of testing presented in Table 5.9, therefore, the exam results should be interpreted in terms of indicators of innate ability, with those of mid-ranking ability having the highest chance of sitting the tests.

5.6.2 Do Psychometric Tests Influence the Incidence of Unemployment?

Raw figures on testing and unemployment

The raw figures presented in Table 5.8 are not unambiguous but, on the whole, they suggest that young people who sat psychometric tests generally experienced less unemployment than those who did not sit the tests. For example, the chance of experiencing a long spell of unemployment between 1993 and 1995 was nearly 2 percentage points higher for those who did not sit the tests (12.4 per cent compared to 10.6 per cent).[32] However, perhaps the main thing to note about these figures is that, with the exception of young people who entered vocational training in October 1993, the differences in unemployment are relatively small. In addition to this, the ninety-five per cent confidence intervals indicate that none of the differences is statistically significant. Thus, even amongst young people on vocational training schemes, for whom the differences in unemployment seem to be quite large, we cannot be confident that the differences are statistically significant.[33]

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[32] Additional figures on testing and the incidence of unemployment, broken down by the main explanatory characteristics, are given in Appendix 5C. Incidentally, such figures represent the starting point for the non-parametric approach to investigating treatment effects, referred to above.

[33] It is also worth noting that, again with the exception of young people who entered vocational training, those who sat the tests had a slightly *higher* chance of experiencing *any* spell of unemployment (as opposed to long-term unemployment or being unemployed in June 1995). Notwithstanding the above comments about statistical significance, there is a sense in which such differences between the different indicators of unemployment are to be expected. In particular, as suggested above, experiencing *any* spell of unemployment is less of a negative labour market experience than experiencing long-term unemployment (because, for example, it includes short spells of 'frictional' unemployment experienced whilst the young people are searching for appropriate forms of education, training or employment).

Table 5.8: Psychometric Testing and the Experience of Unemployment

	PER CENT LONG-TERM UNEMPLOYED		PER CENT UNEMPLOYED IN SPRING 1995		PER CENT WITH ANY EXPERIENCE OF UNEMP	
	Did young person sit tests?		Did young person sit tests?		Did young person sit tests?	
	Yes	No	Yes	No	Yes	No
ALL (n=749)	10.6 (2.7)	12.4 (4.2)	15.7 (3.2)	16.4 (4.7)	25.2 (3.8)	21.6 (5.2)
YOUNG PEOPLE IN FURTHER EDUCATION COLLEGE OCTOBER 1993 (n=299)	4.7 (3.0)	6.0 (4.6)	9.7 (4.1)	7.0 (4.9)	14.4 (4.9)	10.8 (6.0)
YOUNG PEOPLE IN VOCATIONAL TRAINING OCTOBER 1993 (n=202)	8.2 (4.2)	15.2 (11.0)	15.9 (5.6)	31.5 (14.2)	22.8 (6.5)	31.5 (14.2)

Source: Status 0 Survey

Notes: Spells of unemployment experienced only in the summer months of July and August are excluded. Ninety-five per cent confidence intervals are given in parentheses. The figures exclude young people who attended grammar schools as well as those for whom it was not certain as to whether or not they sat the tests.

Econometric Results

The results of the various econometric models which have been estimated are broadly consistent with the raw figures presented above. In particular, the 'sat tests' dummy variable is statistically insignificant in all of the bivariate probit models presented in Table 5.9. This is also the case in a series of probit and bivariate probit models which are estimated for different groups of the population (see Appendix 5D). The econometric evidence, therefore, seems to support the view that testing does not have a significant impact on young people's experiences of unemployment. It is also worth noting that the rho coefficients in Table 5.9, which give the correlation between the error terms in the main equation and the selection equations, are also statistically

insignificant, suggesting that the problem of non-random selection of young people who sat the tests is not as important as was initially anticipated.[34]

[34] LIMDEP (version 7) does not produce marginal effects for the specification of the bivariate probit model used in the present analysis (although it does so for the bivariate probit model with sample selection - see Greene, 1995) The reason why marginal effects are not produced is that it is not clear exactly what the marginal effects are in the present specification, i.e. it is not clear what conditional mean function they should be based on (see, for example, the correspondence between William Greene, author of LIMDEP, and Lisa Powell in the LIMDEP hypermail archives on 'http://econwpa.wustl.edu/limdep/hypermail/'). A number of conditional mean functions for the bivariate model are discussed in Greene, 1997, p910f. In the present analysis, however, none of these seem to be relevant, because 'testing' is an explanatory variable in one of the main equations, and the dependent variable in the other. However, when the rho coefficient is equal to zero, the marginal effects for the bivariate probit model are exactly the same as for the single equation probit model. In the models presented below we could not reject the null hypothesis that the rho coefficient was not significantly different from zero, and so the marginal effects, are those for the corresponding single equation probit models.

Table 5.9: Bivariate Probit Results for (a) Sitting Psychometric Tests, and (b) Experiencing Unemployment

	Sat Psychometric Tests								
	Mar. Eff	Coef	t-stat	Mar Eff	Coef	t-stat	Mar. Eff	Coef	t-stat
Constant	-2.36	-6.81	-2.74	-2.36	-6.81	-2.74	-2.36	-6.81	-2.74
Catholic	0.01	0.02	0.20	0.01	0.02	0.20	0.01	0.02	0.20
Female	-0.04	-0.11	-1.00	-0.04	-0.11	-1.00	-0.04	-0.11	-1.00
School Performance-% of leavers with 5+ GCSEs (A-C)	-0.01	-0.01	-3.27	-0.01	-0.14	-3.26	-0.01	-0.01	-3.28
School Performance-Attendance rate	0.03	0.08	2.74	0.03	0.08	2.74	0.03	0.08	2.74
School Located in Belfast	-0.13	-0.38	-2.04	-0.13	-0.38	-2.06	-0.13	-0.38	-2.05
Overall Proportion of 5th form Pupils Tested	0.00	0.01	8.98	0.00	0.01	8.99	0.00	0.01	8.99
3-4 GCSEs	0.05	0.14	0.78	0.05	0.14	0.79	0.05	0.14	0.78
5-6 GCSEs	0.18	0.52	3.32	0.18	0.52	3.34	0.18	0.52	3.33
7+ GCSEs	0.06	0.17	1.22	0.06	0.17	1.23	0.06	0.17	1.23
	Long-Term Unemployed			Unemployed in Spring 1995			Any Experience of Unemployment		
Constant	-0.6	-4.3	-1.10	-0.65	-3.20	-1.09	-0.24	-0.87	-0.35
Catholic	0.01	0.04	0.26	0.03	0.14	1.00	-0.03	-0.10	-0.78
Female	0.02	0.11	0.61	0.05	0.26	1.88	0.04	0.15	1.24
Father Employed Full-Time	0.00	-0.03	-0.16	0.00	0.00	0.00	-0.03	-0.11	-0.92
Mother Employed Full-Time	0.01	0.04	0.19	-0.02	-0.09	-0.56	-0.02	-0.08	-0.51
Living with Father and Mother	-0.04	-0.3	-1.76	-0.10	-0.50	-3.43	-0.09	-0.36	-2.58
Older Siblings	0.00	0.02	0.53	0.01	0.06	1.53	0.01	0.05	1.49
Younger Siblings	0.01	0.06	1.21	0.01	0.07	1.53	0.02	0.07	1.86
School Performance-% of leavers with 5+ GCSEs	0.00	-0.00	-0.02	0.00	-0.00	-0.62	0.00	-0.00	-0.89
School Performance-Attendance Rate	0.00	0.03	0.78	0.01	0.03	0.77	0.00	0.00	0.02
School located in Belfast	0.01	0.05	0.18	0.03	0.14	0.65	0.05	0.20	0.98
Local Youth Unemployment Rate	0.00	0.01	0.38	0.00	0.01	0.60	0.01	0.02	1.18
3-4 GCSEs	-0.02	-0.12	-0.50	-0.06	-0.27	-1.36	-0.04	-0.13	-0.72
5-6 GCSEs	-0.09	-0.66	-2.67	-0.15	-0.72	-3.63	-0.14	-0.50	-2.97
7+ GCSEs	-0.07	-0.47	-2.27	-0.11	-0.51	-3.23	-0.09	-0.33	-2.34
Sat Tests	0.00	-0.01	-0.02	0.03	0.15	0.39	0.05	0.18	0.52
Rho	-	-0.05	-0.15	-	-0.05	-0.21	-	-0.02	-0.1
Log likelihood		-594			-670			-747	
Log likelihood (constant slopes)		-687			-780			-854	
Pseudo R^2		0.14			0.14			0.13	

Notes: See notes to Table 5.2 above for variable definitions etc. The marginal effects are for the corresponding single equation probit models

Interpreting the Results

The results of the analysis suggest that the use of psychometric testing in Northern Ireland generally has an insignificant influence on the experience of unemployment amongst young people between the ages of 16 and 18. There is a sense in which this was surprising because evidence from the existing literature, reviewed above, suggested that testing generally had a significant, albeit in many cases small, impact on the young people who sat the tests. Of course, as outlined above, most of the

existing evidence relates to the effect of testing on learning outcomes, and it may be the case that testing in Northern Ireland has a positive impact on learning outcomes, without having a significant impact on labour market outcomes.

In order to 'get behind' these results for Northern Ireland, it is important to recognise that the information on psychometric testing which was used in the above analysis was very basic, i.e. a simple 'yes' or 'no' for whether or not the young person sat the tests during the final year of compulsory schooling. This is limited because it gives no indication of the quality of the broader careers guidance milieu within which testing took place. In particular, in a recent statement of what constitutes 'good practice' in the use of psychometric testing (Lay, 1994), it was argued that the effectiveness of testing is critically dependent upon a number of aspects of the way in which the tests are administered. Two key features of this were identified which seem particularly relevant within the Northern Ireland context: firstly, it was argued that it is crucial to ensure that young people who sit psychometric tests receive detailed and impartial feedback on the test results by qualified careers guidance practitioners. Qualitative research conducted as part of this project suggests that the dissemination of results in Northern Ireland usually involves careers teachers / officers providing the young people with the individualised 'report' containing the main results from their tests, and that this is normally followed up some time after with a group discussion of the test results. Only in exceptional circumstances was the dissemination of test results followed up systematically with individual interviews with the young people. Secondly, it was argued in Lay (1994) that the decision about which young people should sit the psychometric tests needs to be taken carefully and, in particular, that routine or 'blanket' testing of all young people in a particular year group should be avoided. Although some targeting of young people for testing does take place in Northern Ireland (this was clear from the econometric results presented above), it was clear from the qualitative interviews with careers officers that the most common approach was the 'blanket' approach, i.e. to test all the young people in each school who were in their final year of compulsory education. Many of the Careers Officers argued that this approach was adopted because it was seen by the schools as being more equitable, in that it did not discriminate between students of differing abilities. It would seem, therefore, that on at least these two accounts, the

administration of psychometric tests in Northern Ireland tends not to satisfy the recommended guidelines. This may go some way to explaining why the expected benefits of testing were not evident in the quantitative analysis presented above.

5.6.3 Other Influences on Unemployment

In terms of other influences on youth unemployment, the most significant variables related to the qualifications which the young people had gained at school. For example, one fifth of those with 0 - 2 GCSE passes had experienced long-term unemployment compared to 8 per cent for those with 3 - 6 passes and 4 per cent for those with 7 or more passes. This strong correlation is reflected in the model results presented in Table 5.9. One interesting finding from the econometric analysis is that there seems to be very little difference in the incidence of unemployment between young people with 3 - 4 GCSEs and those who have 0 - 2 GCSEs. Rather the main differences are between those with 5 or more GCSEs and those with less than five. This is consistent with recommendations made elsewhere to the effect that 5 or more GCSEs represents a minimum threshold level of educational attainment, below which individuals will generally find it difficult to compete in the labour market and, in this case, to make a successful transition from school to work (see, for example, Armstrong, 1996).

Gender and religion differences in the incidence of unemployment tend to be relatively small and statistically insignificant. The finding of a broadly insignificant religious difference in unemployment amongst young people may be surprising, particularly in light of the large religious differences which are known to exist in the adult labour market (see Chapter 2). However, the finding of relatively small religious differences in unemployment amongst young people aged 16 - 18 is consistent with other research on youth transitions in Northern Ireland (Shuttleworth, 1994 and Murphy and Shuttleworth, 1997). It can be attributed, at least in part, to the fact that participation in full-time education and training is relatively high amongst young Catholics. However, as young people progress into the adult labour market, particularly beyond the age of eighteen, a variety of forces come into play and the traditional religious disparities in employment and unemployment start to appear.

Most of the family background factors tend not to exert a significant independent influence on the incidence of unemployment. *A priori*, it was expected that young people with employed parents would be significantly less likely to experience unemployment, all other things being equal. Although the raw figures are consistent with this, the results of the multivariate models suggest that, after controlling for a number of other related factors, these effects are statistically insignificant. This suggests that the raw figures capture, to some extent, the correlation between the family background factors and other variables such as qualifications (e.g. well qualified young people are less likely to have unemployed parents). The one family background variable which does seem to be important, is the one which indicates whether or not the young person is living with both parents. In particular, such young people are less likely to experience unemployment than their counterparts who are living with only one parent. This may reflect, to some extent, the positive influence which a degree of domestic stability can have on the labour market success of young people. Qualitative interviews conducted with a smaller number of young people in Status 0 as part of this research project lend some support to this kind of interpretation (Loudon et al., 1997).

Finally, in the models presented in Table 5.9 which are estimated for boys and girls together, the local youth unemployment rate is statistically insignificant, although it has the expected positive sign. When separate models are estimated for boys and girls, however, the results suggest that local unemployment rates exert a positive influence on the incidence of male youth unemployment and a negative influence on female youth unemployment, although only in the case of males is the effect significant in any of the models (see Appendix 5D below). One possible explanation for these gender differences might be that in areas of high youth unemployment, young women are more likely to avoid unemployment by remaining in post-compulsory full-time education, whereas young men are more likely to enter vocational training schemes from which early leaving and flows into unemployment are generally higher than from full-time education.

5.7 CONCLUSION

Psychometric tests continue to form an important part of careers guidance for young people of school leaving age throughout the UK. In the existing literature, there is little evidence about the impact of testing on subsequent labour market success, although a large number of studies suggest that testing has a significant positive impact on learning outcomes such as self awareness and decision making skills. This paper has presented a quantitative analysis of the effect of testing in Northern Ireland on young people's experiences of unemployment between the ages of 16 and 18. The results suggest that although testing is not having an adverse impact, it is not having a statistically significant positive effect. Although there may be a range of explanations for this, the evidence suggests that it might be attributed to some aspects of test administration in Northern Ireland, such as blanket testing and feedback on test results, which in many cases seem to fall short of recommended guidelines.

Finally, it is worth noting that the information which was available on the extent of blanket testing and the quality of feedback given on test results, was gathered from a series of qualitative interviews with Careers Officers and Careers Teachers. This was because the micro data used in the analysis only contained very basic information on whether or not the young people sat the tests. It might be interesting in future research to conduct a more quantitative evaluation of these issues. In particular, it would be possible, at least in principle, to gather information on the quality and extent of careers guidance provision in each of the schools attended by the young people. This could then be matched to the micro data to give a proxy for the quality of the broader careers guidance milieu within which the psychometric testing took place. Given the results presented above, we would expect that young people who sat the tests in schools in which the careers guidance programme was well developed would be more likely to benefit from testing than their counterparts. This would be an interesting quantitative test of our interpretation which was based primarily on qualitative interviews.

APPENDIX 5A: SOME EXAMPLES OF QUESTIONS USED IN PSCHOMETRIC TESTS

The psychometric tests used in Northern Ireland were designed by an organisation called Saville and Holdsworth Ltd. Before sitting the tests, young people are issued with a practice leaflet which gives them an idea of the type of questions which will be asked in the tests. Two of the main sections in the tests are (a) understanding written passages and (b) numerical calculations. Examples of questions in each of these sections are given below.

A) UNDERSTANDING WRITTEN PASSAGES

In this test, you have to read the passage below, and then answer the questions which follow it. For each question, you have to select the right answer from the four possible answers given, and fill in the appropriate circle on the answer sheet.

Passage
SCHOOL PLAY
Are you interested in acting? If you are, please come to a meeting about this year's school play. You don't need any experience of acting - so give it a try! The meeting will take place in the video room after school tomorrow.

We also need 20 musicians to play music during the play. Musicians do not have to attend the meeting - instead you should see the music teacher as soon as possible.

Questions 1. Who should come to the meeting?

A Only people with experience of acting.
B 20 musicians.
C Anyone interested in acting
D The music teacher and the musicians.

2. What should the musicians do?

A See the music teacher as soon as possible.
B Go to the meeting about the school play.
C See the music teacher after school tomorrow.
D Go to the video room as soon as possible

B) NUMERICAL CALCULATIONS

In this test, you have to select the number which should replace the '?' in the question.

Question		Possible answers			
3.	9 - ? = 4	3	13	5	2
4.	4 x 3 = 36 ÷ ?	9	3	1	24
5.	25% of 12.44 = ?	0.50	311	4.3	3.11

Source: Saville and Holdsworth Ltd 1990, School Leavers Series, Practice Leaflet.

APPENDIX 5B: SUMMARY OF 1970s STUDIES

	Sample	Methodology (In Brief)	Main Results
HOPSON, B An experiment in using psychological tests in groups guidance, 1970	272 pupils from a Leeds secondary modern school	All pupils tested. Self-rating obtained on abilities. Pupils divided into control and experimental groups - latter given feedback on test results. One month later, all pupils do self-ratings again. Teachers completed a British Social Adjustment Scale for each pupil	1 All the experimental groups moved towards greater realism of self-estimation. None of the control groups did so 2 Pupils who benefited least from test interpretation (in groups) were the more maladjusted and less able
BUTLER, A An experiment using tests in vocational counselling, 1971	99 girls from a girls grammar school in Cheshire	Self-ratings on ability and interest obtained for all girls. Pupils divided into 3 grouped: 1 Experimental Group 1 were tested and given results, in small groups; 2 Experimental Group 2 were invited to take tests and given results individually; 3 Control group took tests but given no feedback till after the experiment. All pupils then repeated the self-rating process and completed an occupational choice inventory.	1 All groups showed significant gains in accuracy of self-rating of both abilities and interest, but more so for the latter. 2 There were no significant differences between the two experimental groups but both shared significant improvement over the control group in rating of interests. 3 Experimental Group 2 gave more congruent (in terms of interest) choices than the control group. A similar but not so significant result was found between experimental group 1 and the control group.
BUTLER, F., CRINNION, J and MARTIN, J The Kuder Preference Record in adult vocational guidance, 1972	1,000 clients at Occupational Guidance Units	Half the clients did the test before the guidance interview: the other half received guidance without. All clients completed two questionnaires about themselves prior to the interview, and all were followed up by postal questionnaire 6 months later (70 per cent responded). For each client 4 jobs were considered: job before; job preferred (prior to the interview); job recommended; job after. All were coded in terms of the 2 most appropriate traits in the tests. Comparisons were also made between pairs of jobs, and between test scores and the 4 jobs.	1 Comparisons between the experimental group and control group showed the use of the tests to have no effect on choice of work, or on satisfaction with work and guidance received. 2 For the experimental group, job recommended and job after, both showed a closer relationship to job preferred than was found for control group. 3 For the experimental group, comparison of the 4 jobs with the test scores showed closet agreement to job preferred, and least agreement to job before. 4 For the experimental group, comparison between those satisfied and those dissatisfied with job after showed no difference in respect of their agreement scores and job after.

Appendix 5B (continued)

PRICE, D G The experimental introduction of DEVAT into the YES, 1973	250 secondary school leavers aged between 14½ and 15½.	Pupils completed questionnaire at 3 stages: 1 Immediately after introduction to tests but prior to sitting them; 2 After testing; 3 Immediately after the interview with the Careers Officer. Observers at the CO's interviews noted how the test information was used in guidance.	1 87 per cent of pupils (both sexes) were in favour at the start of testing. As a result of doing them, 70 per cent males and 50 per cent females still considered them useful. About 9 per cent changed their occupational aspirations as a result of taking tests. 2 In the interview the tests were more useful with boys than girls. Test information provided productive lines of discussion with 30 per cent boys, 18 per cent girls. The main role of the test results in the interview was to confirm pupil's choice, but it was also useful in other respects. Pupils participated more in the interview.
BUTLER, F Introduction of the use of psychometric testing by Occupational Guidance Officers at selected guidance units, 1974	151 clients from 9 OGUS. For comparison purposes a 10 per cent random sample of clients was used: n=412.	Each Guidance Officer completed a form for each client referred for testing, giving biographical details, reason for referral and an estimate of the usefulness of tests in guidance. The biographical section was also completed for the 10 per cent random sample.	1 Referred clients were more likely to be male, less well educated and qualified and in lower level jobs, compared to OGU clients in general. 2 Clients were mainly referred where there was difficulty assessing abilities, or where greater detail about them was needed, but it was also useful where clients under-estimated or over-estimated their abilities. 3 In nearly all cases of referral, at least one test was found helpful. Tests of general intelligence were most useful.
TOPLIS, J W, BOYLE, A J, WEST, A S and LOBLEY M S The worth of DEVAT first impressions from Barking, 1976	6 Careers Officers reporting on 191 interviews. In 7 comprehensive schools.	DEVAT applied to pupils on a 'blanket' basis. Careers Officers completed a 2 page questionnaire on usage of DEVAT.	1 Where test results were available, they were offered and discussed in 83 per cent of interviews. 2 The tests were considered to be of value to Careers Officers in over 60 per cent of the interviews. 3 Of the 6 Careers Officers, 5 considered the tests to be of value to pupils in only 44 per cent of cases. 4 Male pupils derived more benefit and enjoyment from the tests, than did females.

Source Clarke (1980)

APPENDIX 5C: UNEMPLOYMENT AND BACKGROUND CHARACTERISTICS TESTING

	Per cent Long-Term Unemployed		Per cent Unemployed in Spring 1995		Per cent with Any Experience of Unemployment	
	Sat Tests		Sat Tests		Sat Tests	
	Yes	No	Yes	No	Yes	No
Catholic	13	12	20	19	27	20
Protestant	9	13	13	14	24	24
Male	11	8	15	13	25	22
Female	11	16	17	19	25	21
School Performance - lt 20% leavers with 5+ GCSEs (A-C)	12	10	18	23	32	31
School Performance - gt 20% leavers with 5+ GCSEs (A-C)	10	14	15	14	21	18
Attendance Rate - lt 90%	12	12	19	19	33	26
Attendance Rate - 90% or more	10	13	14	15	20	18
0-4 GCSE Passes	16	21	25	28	32	35
5+ GCSE Passes	7	6	10	8	21	11
Living with Father & Mother	9	11	13	13	23	17
Not Living with Father & Mother	17	18	26	29	35	37
Father Employed Full-Time	7	12	10	13	19	18
Father Unemployed/Other	15	13	23	20	33	25
Mother Employed Full-Time / Part-Time	9	10	11	6	21	14
Mother Unemp/Home/Other	12	14	19	23	29	26
Local Youth Unemployment - lt14%	8	15	10	20	18	21
Local Youth Unemployment - gt 14%	13	12	20	15	30	22

Source: Status 0 Survey
Notes: See notes to Table 5.2 above for variable definitions etc.

APPENDIX 5D: SUMMARY OF ADDITIONAL ECONOMETRIC RESULTS

	SINGLE EQUATION PROBIT		BIVARIATE PROBIT		
	Coef. on Sat Tests dummy	Coef. on Local Youth Unemp Rate	Coef. on Sat Tests dummy	Coef. on Local Youth Unemp Rate	Coef. on Rho
	LONG-TERM UNEMPLOYED				
ALL (n=749)	-0.02 (0.1)	0.01 (0.5)	-0.02 (0.14)	0.01 (0.4)	-0.45 (0.14)
MALE (n=421)	0.15 (0.7)	0.03 (1.1)	0.15 (0.17)	0.03 (0.8)	-0.09 (0.16)
FEMALE (n=328)	-0.22 (0.9)	-0.03 (0.9)	-0.22 (0.29)	-0.03 (0.8)	0.02 (0.04)
FE COLLEGE IN OCTOBER 1993 (n=299)	-0.03 (0.1)	0.02 (0.5)	-0.03 (0.02)	0.02 (0.27)	-0.03 (0.04)
YTP IN OCTOBER 1993 (n=202)	-0.20 (0.5)	0.06 (1.3)	-0.20 (0.18)	0.06 (0.57)	-0.002 (0.003)
	UNEMPLOYED IN SPRING 1995				
ALL (n=749)	0.14 (1.0	0.02 (0.77)	0.14 (0.35)	0.02 (0.74)	-0.05 (0.2)
MALE (n=421)	0.09 (0.5)	0.04 (1.6)	0.09 (0.15)	0.04 (1.3)	-0.05 (0.14)
FEMALE (n=328)	0.23 (1.1)	-0.02 (0.8)	0.23 (0.38)	-0.02 (0.8)	-0.03 (0.07)
FE COLLEGE IN OCTOBER 1993 (n=299)	0.19 (0.8)	-0.03 (0.8)	0.19 (0.25)	-0.03 (0.65)	-0.02 (0.03)
YTP IN OCTOBER 1993 (n=202)	-0.24 (0.76)	0.07 (1.8)	-0.24 (0.09)	0.07 (1.6)	-0.04 (0.09)
	ANY SPELL OF UNEMPLOYMENT				
ALL (n=749)	0.16 (1.3)	0.02 (1.4)	0.16 (0.5)	0.02 (1.4)	-0.02 (0.09)
MALE (n=421)	0.11 (0.7)	0.05 (2.0)	0.11 (0.22)	0.05 (1.8)	-0.03 (0.08)
FEMALE (n=328)	0.24 (1.3)	-0.06 (0.22)	0.24 (0.5)	-0.06 (0.22)	0.02 (0.06)
FE COLLEGE IN OCTOBER 1993 (n=299)	0.18 (0.9)	0.03 (1.2)	0.18 (0.3)	0.03 (1.1)	0.06 (0.15)
YTP IN OCTOBER 1993 (n=202)	0.01 (0.05)	0.05 (1.5)	0.01 (0.02)	0.05 (1.3)	-0.5 (0.1)

Notes: Absolute values of t statistics are given in parentheses. The model specifications are the same as those presented in Table 5.9 above.

CHAPTER 6

GAINING QUALIFICATIONS POST 16: THE ROLE OF FURTHER EDUCATION AND VOCATIONAL TRAINING SCHEMES

6.1 INTRODUCTION

The most recent National Education and Training Targets were published in 1996, and apply to England, Wales, Scotland and Northern Ireland (see NACETT, 1996). They set out the improvements which need to be made to standards of education and training if the UK economy is to become more competitive as it moves into the 21st Century and beyond. The targets have received widespread endorsement from, for example, central and local government, trade unions, and a range of education and training organisations. Two fundamental empirical findings underpin the targets: firstly, that education and training have an important positive influence on economic growth and, secondly, that standards of education and training throughout the UK are low relative to many other leading industrialised countries. Much of the evidence for these came from detailed work conducted at the National Institute of Economic and Social Research during the 1980s (e.g. Daly et al., 1985, Prais et al., 1989).

At the age of 16, many young people in the UK decide to leave school and enter vocational education or training, either at a Further Education (FE) college, or on a Government training scheme. A fundamental aim of these activities, which has become more important in recent years, is to provide young people with additional and relevant vocational qualifications. For example, when the Training and Enterprise Councils took over responsibility for Youth Training schemes in England and Wales in the late 1980s, their funding was formally related, amongst other things, to the success rates of participants in terms of getting qualifications (see Ploszajska, 1994 for a discussion). In Northern Ireland, the FE and vocational training sectors are more important than elsewhere in the UK, to the extent that a relatively large proportion of young people enter FE colleges or vocational training schemes after leaving school (see Chapter 2 for some comparative figures). In spite of this, the

current debate about education standards and targets, both nationally and locally , has tended to focus more on the performance of schools, as opposed to the potential contribution to be made by the FE and vocational training sectors.[35] This chapter seeks to redress this imbalance by examining the extent to which young people in Northern Ireland who left school at age 16, got qualifications in FE colleges and the Youth Training Programme (YTP) up to the age of 18. In particular, the analysis examines whether or not the choice between FE and YTP at age 16, influences the subsequent success of young people in terms of the chances of getting additional qualifications.

The outline of the chapter is as follows: Section 2 discusses the National Education and Training Targets and examines the progress which has been made towards achieving them in Northern Ireland and elsewhere in the UK. Section 3 provides a brief overview of the (relatively small) economics literature which has examined qualifications gained in the further education and vocational training sectors. Section 4 discusses some key features of the survey data relating to qualifications gained in FE and YTP, and Section 5 discusses the econometric methodology. Section 6 sets out the main findings relating to (a) the factors which influence participation on YTP as opposed to FE, and (b) the effect of participation on YTP on the chances of getting qualifications. Section 7 provides an overview of the main findings.

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[35] This is likely to be related, at least in part, to the fact that information on school performance (i.e. in terms of qualifications obtained and subsequent labour market outcomes), is much better developed than the corresponding information for FE colleges and training schemes. Government are aware of this. For example, in an analysis of the 'Strengths and Weaknesses' of the FE sector the Department of Education for Northern Ireland (DENI) has argued that there is a 'Need for better information on outcomes, particularly qualifications achieved by students, to enable evaluation of effectiveness of the service' (DENI, 1994a, p37).

6.2 BACKGROUND

6.2.1 Progress Towards the National Targets for Education and Training

The Foundation Targets

At the heart of the National targets for Education and Training were three so-called 'Foundation Targets' which specified the standards to be achieved by young people of school-leaving age (see Box 6.1). Measures of the attainment of Foundation Target 1 (FT1) and Foundation Target 3 (FT3) throughout the UK are available from the Labour Force Survey (LFS), and are reported regularly in official statistical publications (see, for example, DfEE, 1996a). Such LFS-based figures are available from the mid-1980s onwards, and although there are some inconsistencies in years due to changes in survey definitions, this allows trends over time to be investigated. Measures for FT2 are currently being developed, and some indicators for recent years of attainment at national level have been published already (see, for example, NACETT, 1996). However, time series information is not available, and there are also concerns about the accuracy of the existing measures (see NACETT, 1996, for a discussion). For this reason, the discussion presented below concentrates on FT1 and FT3.

BOX 6.1: FOUNDATION TARGETS FOR EDUCATION AND TRAINING FOR THE YEAR 2000

Foundation Target 1 (FT1 - equivalent to NVQ level 2)
By age 19, 85 per cent of young people to achieve 5 GCSEs at grade C or above, an Intermediate GNVQ or an NVQ Level 2.

Foundation Target 2 (FT2)
75 per cent of young people to achieve Level 2 competence in communication, numeracy and IT by age 19; and 35% to achieve Level 3 in competence in these key skills by age 21.

Foundation Target 3 (FT3 - equivalent to NVQ level 3)
By age 21, 60% of young people to achieve 2 GCE A levels, and Advanced GNVQ or an NVQ Level 3.

Source: NACETT (1996)

Progress Towards Foundation Target 1 (FT 1)

Since the mid-1980s, progress towards Foundation Target 1 has been reasonable in all parts of the United Kingdom (Figure 6.1). Levels of attainment in Northern Ireland have generally been comparable to England and Wales (although there has been a slight improvement in Northern Ireland's position since the mid-1980s), but lower than in Scotland. The latest figures for 1996 show Scotland as the most successful part of the UK in terms of the attainment of FT1 (77 per cent of 19-21 year olds qualified to NVQ level 2 compared to the UK average of 68 per cent), and Northern Ireland as the next most successful region.[36] On the basis of a simple extrapolation, therefore, the figures suggest that if progress continues to be made at the average rate achieved since the late 1980s, then FT1 is likely to be achieved in most parts of the UK. However, it is worth noting that except in Scotland, progress towards FT1 seems to have levelled off somewhat in the most recent period for which data are available (1994-96). When the data for 1997 become available, it will be interesting to see whether or not this trend continues; if it does, then we can be almost certain that the target for FT1 will not be met.

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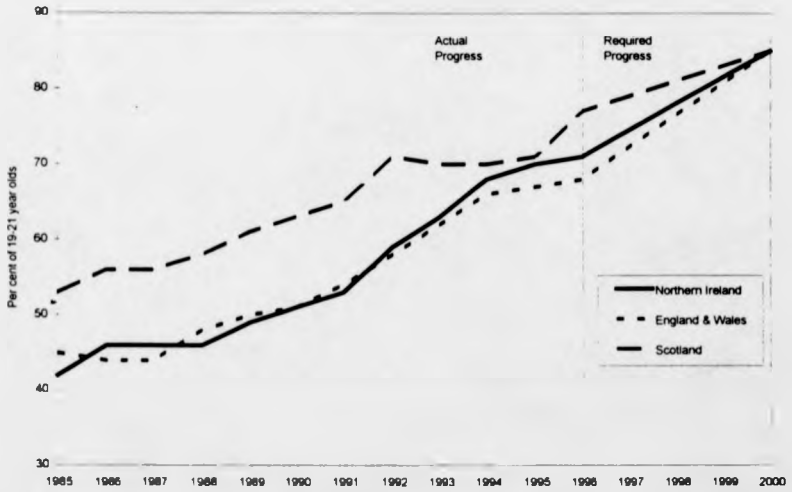
[36] Perhaps the most striking feature of the data for the different parts of the UK, is the markedly superior levels of attainment in Scotland, particularly during the period 1985-92. It is beyond the scope of this chapter to discuss the reasons for this in detail. Nevertheless, it is worth noting that aggregate post-compulsory participation rates in Scotland have tended to be higher than elsewhere in the UK. As outlined below, participation rates have an important influence on overall achievement in terms of examination performance; with a greater number of young people participating in full-time education, this tends to feed through into broadly commensurate increases in the average levels of attainment. Higher rates of participation in Scotland have been attributed to the availability of a certified exit point for 17 year olds (i.e. the one-year Highers), and the greater modularity of Scottish courses, particularly since the introduction of National Certificate modules in 1984 (Raffe, 1993). In addition it is generally recognized that the Scottish system has been better at mixing academic and vocational courses for 16 - 18 year olds. It should also be noted, however, that the apparent gap between Scotland and elsewhere may also have something to do with the way in which the estimates are produced from LFS data. In particular, the figures for the period 1992-95 suggest that other parts of the UK have caught up with Scotland. During this time there have been significant changes in the way in which the qualifications data were collected and coded. This would suggest that at least some of the convergence is related to the changes in the data compilation exercise.

Progress Towards Foundation Target 3 (FT3)

As with FT1, the attainment of FT3 since the late 1980s has tended to be higher in Northern Ireland than in England and Wales, and lower than in Scotland (Figure 6.2). Until the early 1990s, the rate of progress towards FT3 in Northern Ireland was similar to that achieved elsewhere in the UK. Over the most recent period of 1992-96, the figures suggest that attainment in Scotland has levelled off, whereas in England and Wales it has continued to increase, levelling off only in 1996. In Northern Ireland the data suggest considerable fluctuations in recent years; the figures suggest that attainment levelled off between 1992 and 1994, fell slightly between 1994 and 1995, and increased quite significantly between 1995 and 1996. The current position is that, as with FT1, Northern Ireland is slightly behind Scotland and slightly in front of England and Wales. Generally speaking, the data suggest that unless major improvements are made on the progress achieved since the mid-1980s, FT3 will *not* be achieved in most parts of the UK.

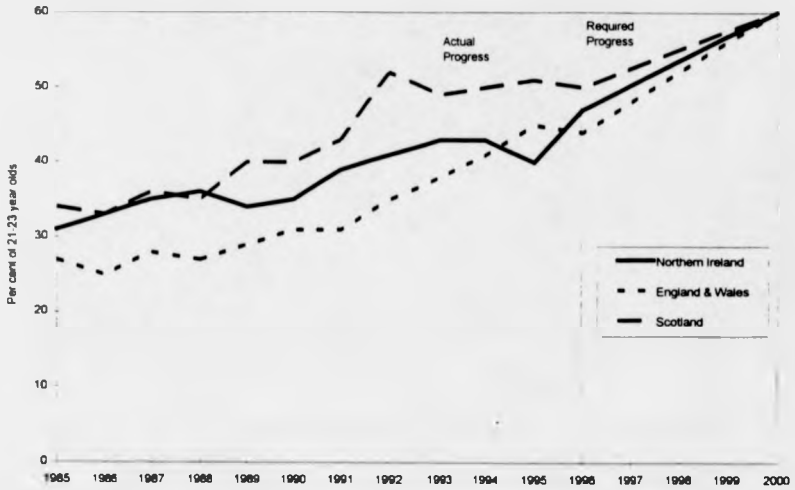
Figure 6.1: Actual and Required Progress Towards Foundation Target 1 in the UK



Source: Labour Force Survey (see Appendix 6A for details)

Notes: Figures are based on information taken from the Labour Force Survey. Figures for 1985-94 are taken from DfEE (1996a) and those for 1995 and 1996 were supplied directly from the Department for Education and Employment. Note that there are some small discontinuities in the series at 1993 and 1996. Figures are expressed as a proportion of 19-21 year olds and relate to the Spring of each year. The data upon which this chart is based are presented in Appendix 6A below.

Figure 6.2: Actual and Required Progress Towards Foundation Target 3 in the UK



Source: Labour Force Survey (see Appendix 6A for details)

Notes: Figures for Great Britain are based on information taken from the Labour Force Survey. Figures for 1985-94 are taken from DfEE (1996a) and those for 1995 and 1996 were supplied directly from the Department for Education and Employment. Figures for Northern Ireland are based on matching information in DfEE (1996a), with information for the period 1992-94 supplied directly by Department for Education and Employment, Department of Education Northern Ireland and Training and Employment Agency. Note that there are some small discontinuities in the series at 1993 and 1996. Figures relate to the Spring of each year. The data upon which this chart is based are presented in Appendix 6A below.

6.2.2 The Contribution of Education and Training Organizations

The figures presented above give no indication of the institutions at which the qualifications were gained (schools, FE colleges or vocational training providers). The Department of Education for Northern Ireland (DENI) and the Training and Employment and Agency (T&EA) have provided estimates of the contribution of each type of organization in Northern Ireland towards FT1 and FT3 in 1994 (Table 6.1). The figures are calculated on a 'value added' basis, i.e. the contribution of FE colleges and vocational training schemes relates only to that proportion of qualifications gained which represent an improvement on the level of qualifications gained at school. The figures show that schools make the most important contribution to the attainment of FT1 and FT3 in Northern Ireland. For example, of the 65 per cent of 19 year olds qualified to FT1 in 1994, 48 percentage points (more than three quarters) gained their qualifications at school. Likewise, amongst the 43 per cent of 21 year olds qualified to FT3 or above, 28 percentage points (around two thirds) gained their qualifications at school.

Around two fifths of each cohort in Northern Ireland, corresponding to around 10,000 young people each year, enter FE or YTP after leaving school in fifth form. The figures in Table 6.1 suggest that a large proportion of these young people are either not getting any qualifications whilst in FE or YTP, or else the qualifications which they are getting do not add anything to the level which they attained at school. They also show that very few young people on vocational training schemes are managing to get qualifications at the equivalent of NVQ level 3. Understanding the extent to which this happens, why it happens and how the situation can be improved, is an important part of the present research. Such insights are particularly important because, a large part of the recent progress towards meeting the targets has come about because of previous increases in educational participation rates. In recent years participation rates have begun to level off, and so further improvements will need to be based on improvements in the performance of, not only schools, but also FE colleges and vocational training providers.

Table 6.1: The Contribution of Schools, FE Colleges and Training Schemes to the National Education and Training Targets in Northern Ireland: 1994

	Foundation Target 1 (FT1)		Foundation Target 3 (FT3)	
	Number of young people	Per cent of 19 year olds	Number of young people	Per cent of 21 year olds
Schools	11,444	47.8	7,093	27.8
FE Colleges	1,786	7.5	2,854	11.2
Training Schemes	2,200	9.2	900	3.5
All	*15,430*	*64.5*	*10,847*	*42.5*
Target for 2000		*85*		*60*

Source: Department of Education Northern Ireland and Training and Employment Agency

Notes: Figures for FT1 include achievement of leavers up to and including 19 year olds. Figures for FT3 include achievement of leavers up to and including 21 year olds.

6.3 LITERATURE REVIEW

6.3.1 Studies of Educational Participation and Vocational Training

One of the key comparisons to be made in the present analysis is between young people who enter FE colleges after leaving school, and those who enter vocational training schemes. In terms of this specific comparison there is, in a sense, a gap in the economics literature. In particular, the literature has tended not to examine explicitly the role of the FE sector in terms of either young people's labour market outcomes, or gaining qualifications. Rather, the focus has been on (a) the factors which influence educational participation and (b) the effects of Youth Training schemes on labour market outcomes. Most of the relevant studies in this literature have either dealt with young people at FE implicitly or else excluded them altogether (see Box 6.2).

BOX 6. 2: ECONOMIC STUDIES OF (A) EDUCATIONAL PARITICIPATION, AND (B) THE EFFECTS OF VOCATIONAL TRAINING

Educational Participation

There have been a relatively large number of studies in the economics literature which have provided both time series analysis (e.g. Rice and McVicar, 1996, Whitfield and Wilson, 1991 and Pissarides, 1981) and cross sectional analysis (e.g. Rice, 1987, Micklewright, Pearson and Smith, 1990, Gray, Jesson and Tranmer, 1994 and Cheng, 1995), of the factors which influence post-compulsory participation in full-time education. These studies have investigated the extent to which educational participation rates are influenced by factors such as local unemployment rates, parents' labour market status, qualifications, ability and school type (these studies were reviewed in Chapter 4 above). In most of these studies, young people at FE have been grouped with those at school, and together they are considered as a single group in terms of young people in full-time education.

The Effects of Vocational Training

Since the mid-1980s there have been a large number of academic studies, mostly based on a microeconomic analysis of the Youth Cohort Study of England and Wales, which have investigated the impact of YTS participation on (a) subsequent earnings received in employment, (b) employment and unemployment probabilities and (c) unemployment duration (e.g. Main and Shelly, 1990, Whitfield and Bourlakis, 1991, O'Higgins, 1994, Dolton, Makepeace and Treble, 1994a). These studies were reviewed briefly in chapter 5 above. Most of these studies have focused on the effects of participation in YTS / YT, and they have tended not to investigate separately the labour market impact of participation on FE. The main exception is Green et al. (1996), which investigates the impact of different types of FE provision on subsequent earnings in employment.

6.3.2 Recent Studies based on Youth Cohort Study Data

The two studies which are perhaps closest to the present research in terms of aims, objectives and methodology are Payne (1995a) (1995b). These have used data from the Youth Cohort Study for England and Wales to investigate the relative effectiveness

of the different routes for young people post-16 in terms of (a) gaining qualifications and (b) subsequent labour market outcomes. Because each of these studies is of particular interest for the current project, they have been summarised briefly in Boxes 6.3 and 6.4 respectively. A number of general points are worth noting: firstly, the results suggest that the choice of route post-16 does indeed have an important influence on the chances of getting qualifications, all other things being equal. For example, in Payne (1995a) young people in FE and vocational training schemes were compared to those who chose the traditional academic route. It was found that those who chose FE were less likely than their counterparts in the academic route to get qualifications, but the differences were not statistically significant after controlling for a range of other factors. Young people who chose the YTS route were, however, significantly less likely to gain additional qualifications. Secondly, it should be noted that some questions can be raised about some of the econometric techniques used in these studies, particularly those used when investigating the factors which influence the attainment of NVQ levels. In this kind of analysis, the dependent variable for each individual takes values of 0, 1, 2 or 3, corresponding to the NVQ level which the individual had managed to attain. In both Payne (1995a) and (1995b) results are presented for an OLS model with sample selection, based on Heckman's (1979) original model. However, the use of OLS in this case, although a useful starting point, is inappropriate because the dependent variable is ordered and not continuous. Instead, an Ordered Probit model with sample selection should be used. This is discussed in more detail below.

BOX 6.3: A BRIEF SUMMARY OF PAYNE (1995a)

Main Aim

The main aim of this report was to examine the relative effectiveness of the different routes which young people take at the end of compulsory schooling. Five main routes were examined, namely (a) full-time academic education, (b) full-time vocational education, (c) full-time education which mixes academic and vocational courses, (d) apprenticeships (inside and outside the YTS framework), and (e) non-apprenticeship YTS. Three main labour market outcomes were investigated, namely (a) qualifications gained, (b) the risk of experiencing unemployment and (c) hourly pay.

Data

Cohort 3 of the Youth Cohort Study for England and Wales. This was a representative sample survey of young people who became legally entitled to leave school in the summer of 1986. It contains information on the labour market activities of the young people in 1994 when they were aged 23/24.

Type of Analysis Conducted

Descriptive statistical analysis was combined with multivariate analysis. The main purpose of the multivariate analysis was to ensure that the evaluation of the relative effectiveness of the different routes was examined, after having controlled adequately for a range of factors such as family background, gender, ethnic background etc.. The multivariate analysis was based on logistic regression with corrections which accounted for the so-called 'sample selection' problem which is encountered in this type of analysis.

Main Findings

- Other things being equal, young people who went down the full-time academic education route were more likely than their counterparts to achieve a good qualification. Next to this, the vocational education route was the most likely to lead to significant improvements in qualifications.
- Those who followed the full-time academic education route had relatively high unemployment probabilities. This, however, is likely to reflect the fact that those who followed this route generally proceeded into higher education and so were likely to be entering the labour market in their early twenties when the final wave of the Survey was conducted. Those following the full-time vocational education route generally had relatively low unemployment probabilities, particularly compared to those on Apprenticeships or YTS. (Note, however, that the lowest unemployment probabilities were experienced by those on Apprenticeships or YTS who had performed relatively well in GCSE examinations at school).
- For those in full-time education (academic or vocational), or on apprenticeships, young people who left the route after one year were much less likely to get further qualifications than those who stayed on for two years.
- The returns from all of the routes (in terms of qualifications, unemployment and pay) were much lower for young people who had performed relatively poorly in GCSE examinations at school. This is evidence of the link between general education and vocational training, i.e. young people who leave school with a better general education (in terms of GCSEs) are more likely to benefit from vocational training provision post-16.

BOX 6.4: A BRIEF SUMMARY OF PAYNE (1995b)

Main Aim

As with Payne (1995a), the main aim of this study was to examine the relative effectiveness of the different routes beyond compulsory schooling. There were two main differences with Payne (1995a), namely (a) this study focused solely on qualifications obtained after compulsory schooling and did not examine other outcomes such as unemployment and relative rates of pay, (b) the time span covered was shorter than in Payne (1995a), i.e. this study concentrated on additional qualifications obtained up to the age of 18-19, whereas Payne (1995a) related to outcomes at the age of 23-24.

Data

Cohort 5 of the Youth Cohort Study for England and Wales who became eligible to leave school for the first time in the school year 1989-90. The young people were last contacted in the Spring of 1993, three years after the end of compulsory schooling.

Type of Analysis Conducted

Most of the discussion is based on simple descriptive statistical analysis of the data, although some multivariate analysis (OLS regression) is presented in an Appendix.

Main Findings

- Gaining academic qualifications such as A Levels and GCSEs tended to be more likely in schools than in FE colleges. The performance of sixth form colleges lay in between these two. When the different characteristics of those who attended schools, FE colleges and sixth form colleges (especially qualifications gained at 5th form) were controlled for, the differences between the different types of institutions became relatively small.

- Outside of the full-time education route, doing an apprenticeship seemed to be the most successful route to gaining further qualifications. It is particularly noteworthy that only one fifth of young people who entered full-time employment at age 16 gained an extra qualification by the age of 18-19.

- Other things being equal, young people from working class and ethnic minority backgrounds tended to perform less well in A/AS level courses than their middle class and white counterparts.

- There were some important differences in the performance of boys and girls on the different routes. In particular, although girls out-performed boys throughout compulsory schooling, including in their year 11 GCSE examinations, they tended to fall behind in some aspects of A Level performance. For example, although girls were more likely than boys to gain at least one A level pass, boys were more likely than girls to get very high grades on A Level courses. This may be because of the different subjects boys and girls study.

6.4 ECONOMETRIC METHODOLOGY

6.4.1 The Types of Models Estimated

Selecting only Young People in FE and YTP

The key comparison to be made in the analysis is between young people who entered FE after leaving school at age 16 and those who entered YTP. All of the analysis presented below, therefore, is conditional upon young people entering one of these two states after leaving school, i.e. young people who entered some other form of activity at age 16 (mainly school, employment or unemployment) are excluded from the analysis. This leaves us with a sample of 605 young people, representing around three fifths of the total sample.

Probits, Ordered Probits and Sample Selection

The analysis investigates the factors which influence the relative success of young people in FE and YTP in terms of gaining additional qualifications. It focuses on four main dependent variables, each of which represents a different aspect of qualifications attainment. Three of these are (1,0) dummy variables (e.g. =1 if young person got any qualifications, =0 otherwise), and one is an ordered variable with values of 0, 1, 2 and 3, each of which corresponds to an NVQ level. Within a straightforward single equation framework, therefore, probit models would be estimated for the (1,0) dummy variables, and ordered probits would be estimated for the (0, 1, 2, 3) ordered variable.[37]

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[37] Other examples can be given of the ordered probit model being used to represent different levels of education, e.g. Jimenez and Kugler (1987) investigate the earnings impact of a particular in-service training programme in Colombia. They account for selection bias by estimating an ordered probit model in which the dependent variable = 0 if no training was undertaken, =1 if only a short course (2-3 months) was taken, and = 2 if a long course (of 2 years) was taken. A similar ordered probit selection model was used in Frazis (1993), to estimate the effects of post-compulsory education on earnings in the US. The ordered probit model has also been used in Mason et al. (1995) to evaluate the effects of teacher, student and course characteristics on ordered measures of course and teaching quality (the ordered values lay between 1 and 5).

However, one of the specific aims of the present analysis is to investigate the extent to which participation on FE or YTP influences the chances of getting qualifications, after controlling for a range of related factors. This means that dummy variables for YTP or FE participation are to be included as explanatory variables in the qualifications equations. This, of course, introduces a standard sample selection problem, which also needs to be accounted for explicitly in the analysis. The basic problem is that, *a priori*, participation on FE and YTP is likely to be non-random, and, if this is the case, then coefficient estimates on the FE / YTP dummy variables in standard single equation models will be biased. This problem has been discussed widely in the youth transitions literature, normally within the context of modelling the effects of YTS participation on subsequent earnings. In this case, the standard Heckman model is used to account for sample selection (the main studies which have done this are discussed in Chapter 5 above). In the present context, however, the Heckman model cannot be used because the dependent variables in the main equations are either dummy variables or ordered variables. In the present analysis, therefore, the sample selection issue is accounted for by estimating bivariate probit models when the dependent variable is a (1,0) dummy, and an ordered probit with sample selection when it is ordered.[38]

6.4.2 Specification of Bivariate Probit Models

The dependent variables in the main equation are expressed as follows:[39]

y=1 if young person got any qualifications
y=0 otherwise

y=1 if young person got an NVQ level 2 qualification or above
y=0 otherwise

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[38] All models were estimated using LIMDEP. Estimation of the bivariate probit model in LIMDEP is straightforward. Estimation of the ordered probit with sample selection is less straightforward; the version of the ordered probit with sample selection which is programmed into the software assumes that for the main equation, the information is only available for those who pass the selection criterion. Therefore, for the present analysis the likelihood function was coded manually into LIMDEP and estimation done using the software's MINIMIZE command. The key elements of the LIMDEP commands used to do this are outlined in Appendix 6C below.

[39] In all of the following notation, the individual subscript i has been dropped for convenience.

y=1 if young person got an NVQ level 3 qualification
y=0 otherwise

The underlying model for each of the dependent variables can be expressed in terms of the following regression relationship:

$$y^* = \alpha z + \beta x_1 + u_1 \quad \text{where } y=1 \text{ if } y^*>0 \text{ and } y=0 \text{ if } y^* \leq 0 \qquad (1)$$

and

y^* is a continuous, latent and unobservable dependent variable which indicates the chances of getting qualifications

z is a (1,0) variable indicating whether or not the young person entered YTP after leaving school (as opposed to FE)

x_1 is a vector of other variables which affect y^* (e.g. gender, entry level qualifications etc.)

α is a scalar coefficient, β is a coefficient vector, and u_1 is a random disturbance term

Now consider another continuous variable, z^*, which represents the probability of a young person entering YTP as opposed to FE. We observe z=1 if the young person enters YTP and z=0 otherwise (i.e. if he/she enters FE). Selection into YTP, therefore, can be represented by the following regression relationship.

$$z^* = \gamma x_2 + u_2 \qquad \text{where } z=1 \text{ if } z^*>0 \text{ and } z=0 \text{ if } z^* \leq 0 \qquad (2)$$

and

x_2 is a vector of explanatory variables which affect the chances of entering YTP (e.g. level of qualifications gained at school, family background, geographical location)

γ is a vector of coefficients, and u_2 is a random disturbance

In the bivariate probit model, the errors u_1 and u_2 are assumed to have a standard bivariate normal distribution with a correlation typically given as ρ, i.e.

$$E(u_1) = E(u_2) = 0$$
$$Var(u_1) = Var(u_2) = 1$$
$$Cov(u_1,u_2) = \rho \qquad (3)$$

Consistent estimates of the model are derived by maximising the following log likelihood with respect to α, β, γ and ρ:

$$\Sigma \{ \; y\ z \log \Phi_2 [\gamma x_2, \alpha z+\beta x_1; \rho] +$$
$$(1-y)\ z \log \Phi_2 [\gamma x_2, -\alpha z -\beta x_1; -\rho] +$$
$$y\ (1-z) \log \Phi_2 [-\gamma x_2, \beta x_1; -\rho] +$$
$$(1-y)\ (1-z) \log \Phi_2 [-\gamma x_2, -\beta x_1; \rho \; \} \qquad (4)$$

where Φ_2 is the bivariate normal distribution function.[40] The model is identified so long as there is at least one element of the vector x_2 which is not in the vector x_1 (Maddala, 1983).

6.4.3 Specification of the Ordered Probit Model

Using 3 or 4 Ordered Outcomes

It is possible for young people in FE or YTP to get qualifications at the equivalent of NVQ levels 1, 2 and 3. However, as outlined above, very few young people who entered YTP got qualifications at NVQ level 3. The very small sample size for such young people creates some estimation problems in the model which accounts for sample selection. For this reason, ordered probit models were estimated for three outcomes (0=no qualifications, 1=NVQ level 1, 2=NVQ level 2 or above, i.e. grouping NVQ levels 2 and 3), as well as four outcomes (0=no qualifications, 1=

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[40] Note that following Greene (1993, p661), the notational convention is to use a subscript 2 for the bivariate normal distribution function. When the subscript is omitted, Φ denotes the univariate normal distribution. In all other cases, the subscript 2 refers to the explanatory variables or the error in the selection equation.

NVQ level 1, 2=NVQ level 2, 3=NVQ level 3). Although the discussion below, is in terms of three ordered outcomes, it is easily extended, to the case of four outcomes.[41]

The Main Equation

The dependent variable in the main equation, y, is ordered, and has the following values:

y=0 if young person got no qualifications
y=1 if young person got a qualification at NVQ level 1
y=2 if young person got a qualification at NVQ level 2 or above

Again, assume that a continuous latent and unobservable variable (y*) underlies the observed dependent variable (y), and is defined by the following relationship:

$$y^* = \alpha z + \beta x_1 + u_1 \qquad (5)$$

where all right hand side variables are defined above. The relationship between y and y* is defined as follows:

$$\begin{array}{lll} y = 0 & \text{if} & y^* \leq 0 \\ y = 1 & \text{if} & 0 < y^* \leq j \\ y = 2 & \text{if} & j < y^* \end{array} \qquad (6)$$

where j is a parameter to be estimated along with coefficients α and β. We assume that u_1 is distributed normally with zero mean and unit variance. Given this, the following probabilities apply:

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[41] Results for a variant of the four outcome case are also presented in the Appendix 6E. In this model the four outcomes are =0 if young person left YTP or FE before completion of the course and got no qualifications, =1 if young person did not leave early and got no qualifications, =2 if young person got NVQ level 1 qualification, =3 if young person got NVQ level 2 or above qualification. This model was estimated in order to incorporate information on the links between staying on for the duration of the course, and getting qualifications This is discussed in more detail below.

$$p(y = 0) = \Phi(-\alpha z - \beta x_1)$$
$$p(y = 1) = \Phi(j - \alpha z - \beta x_1) - \Phi(-\alpha z - \beta x_1)$$
$$p(y = 2) = 1 - \Phi(j - \alpha z - \beta x_1) \quad (7)$$

where Φ is the univariate standard normal distribution function. All the probabilities sum to unity provided that $j > 0$ The marginal effects which correspond to each of the cell probabilities given above can be expressed as follows:

$$\delta P(y = 0)/\delta x = -\phi(\beta x)\beta$$
$$\delta P(y = 1)/\delta x = \{\phi(-\beta x) - \phi(j - \beta x)\}\beta$$
$$\delta P(y = 2)/\delta x = \phi(j - \beta x)\beta \quad (8)$$

Where ϕ is the standard normal density function. The marginal effects sum to zero; this follows from the condition that the probabilities given in (7) sum to unity.

Selection Equation

The selection equation for the ordered probit model is exactly the same as for the bivariate probit model.

$$z^* = \gamma x_2 + u_2, \quad \text{where } z=1 \text{ if } z^*>0 \text{ and } z=0 \text{ if } z^* \leq 0 \quad (9)$$

where all variables are defined above.

Likelihood Function

In the sample selection ordered probit, the errors u_1 and u_2 are assumed to have a standard bivariate normal distribution with a correlation given by ρ, i.e.

$$E(u_1) = E(u_2) = 0$$
$$Var(u_1) = Var(u_2) = 1$$
$$Cov(u_1, u_2) = \rho \quad (10)$$

In order to write down the full likelihood for the model, define an additional set of variables, $m^j (j=0, 1, 2, 3, 4, 5)$, where:

$m^0 = 1$ if (y = 0 and z=1), =0 otherwise
$m^1 = 1$ if (y = 1 and z=1), =0 otherwise

$m^2 = 1$ if (y =2 and z=1), =0 otherwise

$m^3 = 1$ if (y = 0 and z=0), =0 otherwise

$m^4 = 1$ if (y = 1 and z=0), =0 otherwise

$m^5 = 1$ if (y =2 and z=0), =0 otherwise

The log likelihood can then be given by:

$$\log L = L^0 + L^1 + L^2 + L^3 + L^4 + L^5$$

where

$$L^0 = m^0 * \log \{\Phi_2[(-\alpha z - \beta x_1), (\gamma x_2), (\rho)]\}$$

$$L^1 = m^1 * \{ \log \{\Phi_2[(j- \alpha z - \beta x_1), (\gamma x_2), (\rho)] - \Phi_2 [(-\alpha z - \beta x_1), (\gamma x_2), (\rho)]\} \}$$

$$L^2 = m^2 * \{ \log \{\Phi_2[(1000), (\gamma x_2), (\rho)] - \Phi_2[(j- \alpha z - \beta x_1), (\gamma x_2), (\rho)] \} \}$$

$$L^3 = m^3 * \log \{\Phi_2[(-\alpha z - \beta x_1), (-\gamma x_2), (-\rho)]\}$$

$$L^4 = m^4 * \{ \log \{\Phi_2[(j- \alpha z - \beta x_1), (-\gamma x_2), (-\rho)] - \Phi_2 [(-\alpha z - \beta x_1), (-\gamma x_2), (-\rho)]\} \}$$

$$L^5 = m^5 * \{ \log \{\Phi_2[(1000), (-\gamma x_2), (-\rho)] -\Phi_2 [(j- \alpha z - \beta x_1), (-\gamma x_2), (-\rho)] \} \} \qquad (11)$$

6.5 DATA

As outlined above, the survey was originally conducted as part of a study into youth unemployment in Northern Ireland. For this reason it is limited to some extent, in terms of the amount of information it can provide on the number, type and level of qualifications gained at FE and YTP. For each separate spell of further education and vocational training which the young person experienced, information was requested on the number, type, subject and level of qualifications obtained. The particular format of the questions is illustrated in Table 6.2. The format was the same as that used to gather information from the young people about the qualifications which they gained at school up to 5th form. For this reason, there is a relatively large amount of space devoted to listing up to 13 GCSEs.[42]

Table 6.2: Qualifications Questions in the Status 0 Survey

GCSE / O'Levels	Grade	A' Levels	Grade
1		3	
2		4	
3		5	
4		NVQ's	Level
5		1	
6		2	
7		3	
8		4	
9		5	
10		6	
11		Other (RSA, BTEC, City & Guilds, etc.)	Grade
12		1	
13		2	
A' Levels	Grade	3	
1		4	
2		5	
3		6	

[42] It is rare for a young person in full time vocational education and training post-16 to study for a large number of GCSEs. Although it is common for young people at FE colleges to study for GCSEs after they leave school, it tends to be the case that they study for a relatively small number, often repeating the exams in which they had performed relatively poorly at school.

Table 6.2 shows that vocational qualifications such as RSA, City & Guilds and BTEC were asked about under the one heading. The interviewers were asked to specify in detail the level and type of vocational qualification obtained. Each type of vocational qualification has a number of different levels or grades, each of which corresponds to a different NVQ level. For example, one of the most common qualifications studied for at FE colleges is BTEC. Within BTEC there are a number of different levels; for example, the BTEC National Diploma / National Certificate broadly corresponds to NVQ Level 3 (equivalent to more than one A Level pass), whereas the BTEC First Diploma / First Certificate corresponds to an NVQ level 2 (equivalent to 5+ GCSEs at grades A-C). An important part of the present analysis involved assigning an equivalent NVQ level to each of the different levels and types of vocational qualifications. The coding framework used to do this is similar to the one currently used by the Department for Education and Employment to group qualifications information taken from the Labour Force Survey (see, DfEE, 1996a). The framework is illustrated in Box 6.5.

Some young people indicated that they got a certain type of vocational qualification, but they did not indicate what level the qualification was at. In Box 6.5, these are listed under the 'Other' heading. The extent of this varied amongst the different kinds of qualifications but, on average, around three out of ten who got qualifications in FE or YTP were coded in this way. In terms of assigning NVQ levels, a number of approaches could, in principle, be adopted towards such young people; for example, they could simply be excluded from the sample, or it could be assumed that they had all achieved a certain level of NVQ (e.g. NVQ level 1). Rather than opt for any of these, or other, approaches, it was decided to assign an NVQ level according to the particular type of vocational qualification and the number of GCSEs which the young people had gained at school. Details of exactly how this was done are discussed in full in

Appendix 6B.[43] Mean values of explanatory variables used in the analysis are shown in Table 6.3.

Table 6.3: Means of Explanatory Variables Used in the Analysis

Variable	Mean
Catholic	0.50
Non-Catholic*	0.50
Female	0.40
Male*	0.60
Father Employed Full Time	0.59
Father Unemployed/Other*	0.41
Mother Employed Full Time	0.24
Mother Unemployed/Other*	0.76
Living with Father and Mother	0.80
Not Living with Father and Mother*	0.20
Number of Older Siblings	1.43 (1.53)
Number of Younger Siblings	1.30 (1.34)
% of school leavers with 5+ GCSEs (A-C)	32.8 (24.8)
School Attendance Rate	91.6 (2.9)
Grammar school	0.14
Secondary/Other school*	0.86
Belfast DC	0.11
Derry DC	0.11
East	0.28
South	0.17
North	0.10
West*	0.24
No GCSEs (A-C)*	0.37
1-4 GCSEs (A-C)	0.41
5+ GCSEs (A-C)	0.22
Sat Psychometric tests	0.61
Did not sit Psychometric tests*	0.39
Proportion in school who sat Psychometric tests	52.8 (38.9)

Source: Status 0 Survey

Notes: Figures are weighted. Details of the construction of weighting variables are given in Chapter 3. The raw sample size is 615. For continuous variables, standard deviations are given in parentheses. For dummy variables, the categories used as default categories in the econometric models are marked with an asterix. Figures on school performance are taken from DENI (1994b). Travel-to-Work-Area dummy variables are defined as follows: North = Coleraine and Ballymena TTWAs; South = Craigavon and Newry TTWAs; East = Rest of Belfast (i.e. excluding Belfast DC); West = Magherafelt, Cookstown, Dungannon, Omagh, Enniskillen, Strabane and Londonderry TTWAs.

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[43] This approach was rather time consuming, since it essentially meant breaking down the 53 cases for whom the qualification was not specified into 30 separate groups. Although this meant that the data were sometimes coded on a case-by-case basis, this was judged to be the most accurate coding technique, and the one which allowed the maximum amount of information to be preserved in the dataset.

BOX 6.5: NVQ EQUIVALENTS FOR DIFFERENT ACADEMIC AND VOCATIONAL QUALIFICATIONS

NVQ LEVEL 3
MORE THAN ONE A LEVEL PASS (grades A - E)
NVQ LEVEL / STAGE 3
GNVQ ADVANCED (level / stage 3)
RSA ADVANCED DIPLOMA (level / stage 3)
BTEC: NATIONAL DIPLOMA, NATIONAL CERTIFICATE (OND / ONC)
CITY AND GUILDS ADVANCED CRAFT/ PART III

NVQ LEVEL 2
ONE A LEVEL PASS
5+ GCSEs (grades A - C) or 5+ CSEs (grade 1)
AS LEVEL
GNVQ INTERMEDIATE (level / stage 2)
NVQ LEVEL / STAGE 2
RSA DIPLOMA / CERTIFICATE (level / stage 2)
BTEC: FIRST DIPLOMA, FIRST CERTIFICATE
CITY AND GUILDS CRAFT / PART II

NVQ LEVEL 1 OR BELOW
OTHER GCSEs, CSEs
AEB
GNVQ FOUNDATION (level / stage 1)
NVQ LEVEL / STAGE 1
RSA STAGE 1
BTEC GENERAL CERTIFICATE
YTP CERTIFICATE
OTHER - SUBJECT ONLY
OTHER - LANGUAGE CERTIFICATE
INDUSTRY SKILLS TESTS
JOB-RELATED NVQ

OTHER
GNVQ Other
NVQ Other
RSA Other
BTEC Other
CITY AND GUILDS Other

NO QUALIFICATIONS / DON'T KNOW
NO QUALIFICATIONS
WAITING FOR RESULTS
DON'T KNOW
NONE (written)

6.6 RESULTS

6.6.1 Factors Influencing the Choice between YTP and FE

Whether Young People Sat Psychometric Tests

Young people who sat psychometric tests during their fifth form were significantly more likely to end up in YTP after fifth form, even after controlling for a range of related factors (Table 6.4). Perhaps the main reason for this is that the 'sat tests' dummy variable is acting as a proxy for young people with firmly vocational aspirations. It was outlined above, that one of the main purposes of the tests was to guide young people with vocational aspirations into appropriate forms of vocational training or employment. In the present context, therefore, it could be argued that the 'sat tests' dummy variable is identifying young people who were aware at the schooling stage, or else made aware by careers officers, of the fact that a vocational route was most appropriate for them. The models also included a continuous indicator of the proportion of young people who were tested at the school which the young person attended up to 5th form. This was intended, as in Chapter 5 above, to capture aspects of the culture of the school attended by the young person which relate specifically to testing, e.g. the attitudes of the headteacher, staff and pupils towards testing. This variable, however, was statistically insignificant in the models.

The 'sat tests' dummy variable is particularly important from an econometric point of view because it is acting as the identifying variable in the bivariate probit models. As outlined above, this particular model is identified so long as there is one variable in the selection equation which is not in the main equation. This will be a variable which, *a priori*, is considered to affect the chances of choosing YTP as opposed to FE, but not to affect the chances of success in YTP or FE in terms of getting qualifications. If the testing dummy is, as suggested above, accepted as a proxy for the vocational aspirations of young people, then this would seem to meet these criteria. In particular, we would expect young people's vocational aspirations to have a strong influence on their chances of ending up in YTP, but not necessarily to affect their chances of getting qualifications in YTP or FE. This is particularly the case since the late 1980s, during which time the provision of NVQ qualifications has become established as one of the main aims of vocational training programmes. In support of this interpretation

it should be noted that (a) in single equation models for qualifications attainment, the testing dummy was insignificant, and (b) we know from the research presented in Chapter 5 above that testing *per se* did not have a significant impact on the experience of unemployment amongst young people in the present sample.

Gender and Religion

Females and Catholics are less likely to enter YTP than their male and non-Catholic counterparts. The raw differences are quite large, for example, 59 per cent of males entered YTP compared to 42 per cent of females. However, the effects are generally insignificant in the econometric models (Table 6.4)[44]. Two main points are worth making about these results: firstly, it was shown in Chapter 4 above that Catholics and females are generally more likely to remain in full-time education, either at school or FE college, compared to YTP, employment or unemployment. One explanation for this was that, because of labour market disadvantage amongst Catholics and females, they remain in education in order to get the qualifications which will allow them to compete effectively as adults in the labour market. In terms of the differences between FE and YTP, therefore, the preference for FE amongst Catholics and females might be related to the fact that they believe their chances of getting qualifications will be better served on FE as opposed to YTP. Secondly, there has been concern for some time that the administration and content of vocational training schemes for young people in Northern Ireland has tended to reflect primarily male, and perhaps non-Catholic, training needs. For example, the timing and venues of some courses have been criticised as being unsuitable for young women with family responsibilities. In addition, some of the promotional literature for YTP has included so-called 'counter-signals' for young women and Catholics, such as leaflets showing only men doing manufacturing jobs, which have traditionally been held by male Protestants (Curry, 1993).

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[44] A full set of crosstabulations is given in Appendix 6D.

Qualifications Gained at School

YTP is the main destination for low achievers in Northern Ireland. More than three quarters (77 per cent) of young people who gained no GCSE passes entered YTP after leaving school, compared to around one half of those with 1-4 passes, and 14 per cent of those with 5 or more passes (Appendix 6D). The econometric analysis confirms that these effects are highly significant (Table 6.4). These findings are important for the analysis presented below because, since young people on YTP are generally less well qualified to begin with than their counterparts on FE, this may be one of the reasons why they might find it more difficult to get additional qualifications.[45]

Family Background and School Performance

In terms of family background variables, the raw figures show fairly traditional patterns (Appendix 6D). However, none of the family background variables (parents' labour market status, number of younger and older siblings and living arrangements), seems to have a statistically significant effect in the models. In terms of school performance, the attendance rate is negatively related to the chances of entering YTP, and the effect is significant in all of the models presented in Table 6.4. This is consistent with the idea that the school attendance rate is a proxy for general aspects of 'school culture' which encourage young people to remain in full-time education (discussed more fully in Chapter 4 above).

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[45] From a technical point of view, it is important to note that the inclusion of the qualifications variables in the probit model selection equation may be problematic. The main reason is that qualifications may be endogenous in the sense that there may be a causation running from the choice to participate in YTP to the qualifications which the young people manage to attain. For example, some young people may have decided at a point prior to the school leaving date that YTP was the most appropriate destination for them. Their subsequent poor performance at GCSEs may then be seen in some sense as a result or consequence of this decision, since for most YTP courses there tend to be no or little entrance requirements. Although such arguments are valid, qualifications appear in the selection equation, mainly as a proxy for the ability differences which exist between young people who enter YTP compared to those who enter FE. The default category of no GCSE passes, therefore, might be taken to proxy low ability, the dummy for 1-4 passes to proxy medium ability and the dummy for 5 or more passes to proxy high ability. A similar interpretation has been given to qualifications variables in models of the choice to participate in full-time education (see Micklewright, 1987 and Chapter 4 above).

Table 6.4: Bivariate Probit Results for the Chances of Getting Additional Qualifications

	Probability of Entering YTP								
	Marg eff	Coef	t	Marg eff	Coef	t	Marg eff	Coef	t
Constant	1.83	4.83	1.75	1.83	4.83	1.74	1.83	4.83	1.77
Catholic	-0.06	-0.15	-1.03	-0.06	-0.15	-1.03	-0.06	-0.15	-1.03
Female	-0.04	-0.11	-0.80	-0.04	-0.11	-0.79	-0.04	-0.11	-0.80
Father Employed Full-Time	-0.01	-0.02	-0.16	-0.01	-0.02	-0.16	-0.01	-0.02	-0.16
Mother Employed-Full-Time	-0.07	-0.20	-1.28	-0.07	-0.20	-1.30	-0.07	-0.20	-1.28
Living with Father and Mother	0.05	0.14	0.84	0.05	0.14	0.84	0.05	0.14	0.85
No. of Older Siblings	0.01	0.03	0.62	0.01	0.03	0.62	0.01	0.03	0.62
No. of Younger Siblings	0.02	0.06	1.09	0.02	0.06	1.09	0.02	0.06	1.10
% of Leavers with 5+ GCSEs	0.00	0.00	0.26	0.00	0.00	0.26	0.00	0.00	0.26
Attendance Rate	-0.02	-0.06	-1.89	-0.02	-0.06	-1.89	-0.02	-0.06	-1.91
Grammar School	0.13	0.33	0.94	0.13	0.33	0.94	0.13	0.33	0.94
Sat Psychometric tests	0.14	0.37	2.33	0.14	0.37	2.33	0.14	0.37	2.34
Proportion in school sitting tests	0.00	0.00	0.59	0.00	0.00	0.59	0.00	0.00	0.60
Belfast DC	0.30	0.80	3.60	0.30	0.80	3.61	0.30	0.80	3.66
Derry DC	0.28	0.75	3.21	0.28	0.75	3.24	0.28	0.75	3.18
East	0.08	0.21	1.12	0.08	0.21	1.12	0.08	0.21	1.10
South	0.04	0.10	0.45	0.04	0.10	0.46	0.04	0.10	0.46
North	0.29	0.77	3.24	0.29	0.77	3.23	0.29	0.77	3.22
1-4 GCSEs (A-C)	-0.21	-0.57	-4.13	-0.21	-0.57	-4.11	-0.21	-0.57	-4.14
5+ GCSEs (A-C)	-0.54	-1.42	-7.23	-0.54	-1.42	-6.87	-0.54	-1.42	-7.12
	Any Qualifications			NVQ level 2			NVQ level 3		
Constant	-0.05	-0.14	-0.04	-0.61	-1.54	-0.52	-0.47	-3.16	-0.63
YTP	-0.03	-0.10	-0.12	-0.03	-0.09	-0.11	-0.14	-0.97	-0.71
Catholic	0.01	0.03	0.20	-0.08	-0.20	-1.42	-0.04	-0.26	-1.24
Female	-0.01	-0.02	-0.17	0.00	-0.01	-0.07	-0.02	-0.11	-0.67
Father Employed Full Time	0.07	0.21	1.53	0.02	0.06	0.42	0.01	0.07	0.37
Mother Employed Full Time	0.02	0.06	0.40	-0.01	-0.02	-0.12	-0.04	-0.27	-1.36
Living with Father and Mother	0.08	0.22	1.36	0.08	0.20	1.26	0.02	0.14	0.52
No. of Older Siblings	-0.01	-0.02	-0.55	0.00	0.01	0.30	0.00	0.01	0.12
No. of Younger Siblings	-0.05	-0.13	-3.03	-0.02	-0.04	-0.85	-0.01	-0.05	-0.63
% of Leavers with 5+ GCSEs (A-C)	0.00	0.00	0.36	0.00	0.00	-0.73	0.00	-0.01	-1.58
Attendance rate	0.00	0.00	0.17	0.01	0.02	0.61	0.00	0.03	0.49
Grammar school	0.01	0.02	0.05	0.15	0.37	1.16	0.08	0.51	1.21
Belfast DC	-0.15	-0.44	-1.47	-0.31	-0.79	-2.52	-0.24	-1.62	-2.09
Derry DC	-0.04	-0.13	-0.41	-0.11	-0.28	-0.93	-0.12	-0.81	-1.54
East	-0.09	-0.26	-1.37	-0.15	-0.37	-2.14	-0.05	-0.32	-1.28
South	-0.07	-0.21	-0.98	-0.22	-0.56	-2.87	-0.11	-0.76	-2.82
North	-0.24	-0.69	-2.40	-0.29	-0.74	-2.53	-0.09	-0.59	-1.38
1-4 GCSEs (A-C)	0.09	0.25	1.20	0.11	0.29	1.40	0.12	0.84	2.01
5+ GCSEs (A-C)	0.19	0.54	1.31	0.06	0.15	0.38	0.25	1.68	2.42
Rho	-	-0.007	-0.01	-	0.003	0.01	-	-0.004	0.00
Log Likelihood	-643			-682			-497		
Log Likelihood (constant slopes)	-748			-785			-628		
Pseudo R^2	0.14			0.13			0.21		

Notes: The analysis excludes a small number of young people for whom it was uncertain as to whether or not qualifications were obtained. The sample size is 578. Marginal effects are for the corresponding single equation probit models, standard errors for marginal effects are available from the author on request.

Table 6.5: Ordered Probit Results for the Equivalent NVQ Level of Qualifications Attained

	3 Ordered Outcomes (y=0, 1, 2)				4 Ordered Outcomes (y=0, 1, 2, 3)	
	Model 1 Single Equation		Model 2 Sample Selection model		Model 3 Single Equation	
	Coef	t	Coef	t	Coef	t
Constant	-0.38	-0.17	-1.12	-0.41	-0.19	-0.09
YTP	-0.05	-0.42	0.33	0.47	-0.22	-1.83
Catholic	-0.08	-0.66	-0.06	-0.43	-0.12	-1.11
Female	0.04	0.41	0.06	0.57	-0.02	-0.26
Father Employed Full Time	0.09	0.84	0.09	0.85	0.12	1.07
Mother Employed Full Time	0.03	0.21	0.05	0.34	-0.06	-0.49
Living with Father and Mother	0.27	2.02	0.25	1.66	0.21	1.67
No. of Older Siblings	-0.01	-0.23	-0.01	-0.32	0.00	-0.05
No. of Younger Siblings	-0.10	-2.54	-0.10	-2.56	-0.08	-2.24
% of Leavers with 5+ GCSEs	0.00	-0.17	-0.0007	-0.14	0.00	-0.67
Attendance rate	0.01	0.38	0.02	0.56	0.01	0.38
Grammar School	0.18	0.60	0.15	0.48	0.27	0.97
Belfast DC	-0.63	-3.12	-0.72	-2.83	-0.67	-3.29
Derry DC	-0.18	-0.90	-0.28	-1.1	-0.33	-1.69
East	-0.37	-2.42	-0.40	-2.52	-0.35	-2.52
South	-0.42	-2.35	-0.44	-2.36	-0.50	-3.03
North	-0.70	-3.79	0.79	-3.43	-0.7	-4.25
1-4 GCSEs	0.28	2.26	0.35	2.03	0.31	2.36
5+GCSEs	0.55	3.61	0.72	2.15	0.87	5.97
MU (1)	0.55	11.66	0.55	9.90	0.55	11.65
MU (2)	-	-	-	-	1.52	17.78
Rho (p)	-	-	0.23	0.54	-	-
Log Likelihood	-565		-874		-724	
Log Likelihood (constant slopes)	-599		-984		-786	
Pseudo R^2	0.06		0.11		0.08	

Notes See Notes to Table 6.4. The results of the selection equation part of the model with sample selection (i.e. the probit for YTP participation) are not shown. The results of this are very similar to the corresponding part of the bivariate probit models presented in Table 6.4 above. The marginal effects for Models 1 and 3 are given in Appendix 6E.

6.6.2 The Effects of YTP on Getting Qualifications

Raw Figures

The raw figures suggest that young people in FE are more likely to get qualifications than their counterparts on YTP. In particular, around two thirds (68 per cent) of young people who entered FE Colleges got some kind of a qualification during their time there, compared to three fifths of those who entered YTP (Table 6.6)[46]. In terms of the level of qualification attained, the main difference between FE and YTP students, lies in the proportion attaining NVQ levels 2 and 3. In particular, the majority of young people who got a qualification at YTP did not reach a level higher than NVQ level 2. In contrast, three out of ten FE students reached the equivalent of NVQ level 3, compared to only 2 per cent of YTP students.

Table 6.6: Gaining Qualifications in Further Education and Vocational Training

	Further Education Students	YTP Students
	per cent of cohort	
Got Any Qualifications	68	60
Attained NVQ 2 or above	47	40
Attained NVQ 3	30	2

Source: Status 0 Survey

Notes: The cohorts are defined as those who entered FE and YTP in October 1993. The coding of the different vocational (eg BTEC, RSA etc) into equivalent NVQ levels is discussed in Appendix 6B.

Many young people who entered FE and YTP with some school-based qualifications ended up achieving little or nothing from their time in FE or YTP. For example, of those who entered FE with 5 or more GCSEs (A-C), equivalent to NVQ level 2, 16 per cent achieved no additional qualifications at FE, 16 per cent achieved an NVQ level 1 qualification and around one tenth (9 per cent) achieved an NVQ level 2 qualification (Table 6.7).

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[46] These figures are broadly consistent with figures on young people in FE and YTP taken from administrative sources (i.e. collected by the Department of Education for Northern Ireland and the Training and Employment Agency). In particular, administrative figures suggest that 67% of FE students and 53% of YTP students gain any kind of qualifications. The administrative figures for YTP include young people who left a particular scheme after a few weeks to join another scheme. This is likely to be the main reason why they are somewhat lower than the figures from the Status 0 Survey, presented above.

Table 6.7: NVQ Level Attained in FE and YTP by Entry Level Qualifications

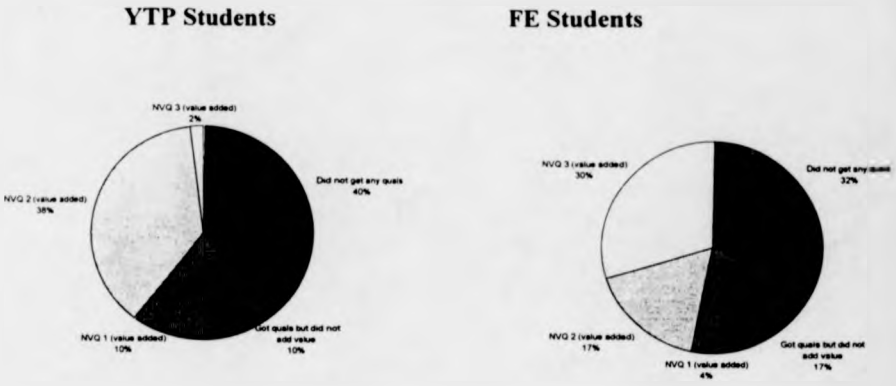
	Level of Qualifications Gained in FE or YTP	Level of Qualifications Gained at School		
		None (No GCSEs A-C) (share = 18%)	NVQ 1 (1-4 GCSEs A-C) (share = 44%)	NVQ 2 (5+ GCSEs A-C) (share = 39%)
FE students (n=377)	None	41	22	16
	Don't Know	3	10	10
	NVQ 1	25	16	16
	NVQ 2	27	29	9
	NVQ 3	4	23	49
	ALL	100	100	100
		None (share = 56%)	NVQ 1 (share = 38%)	NVQ 2 (share = 6%)
YTP students (n=238)	None	44	33	32
	Don't Know	2	-	-
	NVQ 1	18	18	18
	NVQ 2	35	46	41
	NVQ 3	1	3	8
	ALL	100	100	100

Source: Status 0 Survey

Notes: The coding of the different vocational qualifications (e.g. BTEC, RSA etc.) into equivalent NVQ levels is discussed in Appendix 6B.

These figures can be used to derive a summary of what might be called the 'qualifications value added' for young people at FE and YTP (Figure 6.3). Around one half of both FE and YTP students added value to their entry level of qualifications. This corresponds to around 2,700 FE students in the population cohort and 2,700 YTP students. The majority of FE students who added value to their level of qualifications attained the equivalent of NVQ level 3, and most of the rest attained the equivalent of NVQ level 2. In contrast, the majority of young people at YTP who added value to their level of qualifications achieved the equivalent of an NVQ level 2. Only a tiny minority managed to achieve the equivalent of NVQ level 3, and a relatively small proportion achieved the equivalent of NVQ level 1.

Figure 6.3: A Summary of 'Qualifications Value Added' in FE and YTP



Source: Status 0 Survey
Notes: The coding of the different vocational (eg BTEC, RSA etc.) into equivalent NVQ levels is discussed in Appendix 6B

Econometric Results

The fundamental question remains, however, as to whether or not such differences reflect something intrinsic to YTP (e.g. course content and administration), as opposed to differences in the observed and unobserved characteristics of young people who chose to enter the different forms of activity. The coefficient on the YTP dummy variable is negative in all of the models. However, the statistical significance of the coefficient depends on (a) which indicator of qualifications is being investigated, and (b) which particular model specification is preferred. The results of the different models are summarized in Table 6.8. In all of the models in which the decision to participate on YTP is modelled jointly with the chances of getting additional qualifications, the coefficient on the YTP dummy variable is statistically insignificant with absolute t ratios ranging from 0.1 to 0.7. This is in contrast to *some* of the single equation models in which, depending on which indicator of qualifications is being investigated, the coefficient is in some cases statistically significant. For example, in the single equation probit model for getting NVQ level 3 qualifications, along with the ordered probit model for the level of NVQ attained (when 4 ordered outcomes are modelled), the YTP dummy variables are negative and statistically significant at a 5 per cent level. These results are obviously being driven

by the fact that only a tiny minority of young people on YTP get NVQ level 3 qualifications. As outlined above, the main reason for jointly modelling participation and qualifications was to account for the role of unobserved variables in each equation. The results suggest, therefore, that when this is done the differences between young people on YTP and those on FE, evident in the raw data and in some of the single equation models, become negligible. It is also worth noting, however, that the correlation between the two errors is statistically insignificant in all of the models.

Table 6.8: Summary of Coefficient Values on YTP Dummy Variable in Econometric Models

	Single Equation Models	Joint models of YTP Participation and Getting Qualifications	
	coef (t)	coef (t)	rho
Got Any Qualifications	-0.14 (0.05)	-0.10 (0.12)	-0.007 (0.01)
Attained NVQ 2 or above	-0.09 (0.69)	-0.09 (0.11)	0.003 (0.01)
Attained NVQ 3	-0.97 (4.46)	-0.97 (0.71)	-0.004 (0.00)
NVQ level attained - 3 ordered outcomes (0, 1, 2)	-0.05 (0.42)	0.33 (0.47)	0.23 (0.54)
NVQ level attained - 4 ordered outcomes (0, 1, 2, 3)	-0.22 (1.83)	-	-

Notes: See Tables 6.4 and 6.5 above. The full results of the single equation models are available from the author on request

6.6.3 Other Influences on Getting Qualifications

As expected, young people who had gained a reasonable number of 'good' GCSE passes at school (i.e. passes at grades A-C), were more likely to get additional qualifications on FE or YTP. These results are consistent with other research from Great Britain (Payne, 1995a, 1995b). They are important because they illustrate the importance of ensuring that young people leave school with an adequate level of qualifications; if they do not, then it is difficult for them to make up the lost ground, either in FE colleges or on YTP. There is some evidence of young people living with both their father and mother being more likely to get qualifications, but this is only in the single equation models (Table 6.5). The number of younger siblings seems to exert a negative influence on the chances of getting additional qualifications. None of the school performance variables was significant in any of the models. It has been shown above that school performance seems to have a significant influence on the

choices made by young people post-16. The above results suggest that once these choices have been made, the effects of school performance on the subsequent performance of young people in further education or vocational training is negligible.[47] Young people from the Western regions were more likely to get qualifications.

6.6.4 Time Spent in FE and YTP

The longer young people spent in FE or YTP, the more likely they were to get additional qualifications, all other things being equal. For example, less than one half of young people who stayed in FE or YTP for less than 6 months got any qualifications, compared to more than seven out of ten of those who stayed for more than 18 months. It was decided not to include a 'time spent in activity' variable in the main econometric models because it would be highly endogenous; although the time spent in the activity is likely to have a strong causal influence on the chances of getting qualifications, the direction of causation may also be the other way around. For example, one of the reasons why young people may decide to leave FE or YTP before completion of their course is that they believe their chances of getting additional qualifications are likely to be small. Notwithstanding these difficulties some alternative models were estimated which included the time spent in activity as an explanatory variable and, as expected, it was found to have a highly significant positive impact on the chances of getting additional qualifications (see Model E1, Appendix 6E). An alternative way of including the information on time spent in activity is to include 'leaving early' as a category in the ordered probit models. Thus the dependent variable could be specified as =0 if young person left early and got no qualifications, =1 if did not leave early and got no qualifications, =2 if got NVQ level 1 etc.. The results of one such model are presented in Appendix E (Model E2). The

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[47] Of course, it would have been, perhaps, more interesting to have measures of performance of the further education or training organization attended by the young person. The expectation would be that young people who attended organizations which performed relatively well according to standard indicators, would perform relatively well themselves. This, then, could be interpreted in terms of cultural influences on the young person. Unfortunately, data limitations prevented this kind of exercise. However, it may be worth considering this kind of exercise as part of future research.

results are quantitatively very similar to the standard models, and this approach seems not to add much to the analysis.

6.7 CONCLUSION

This chapter has investigated whether or not the choice between FE and YTP at the age of 16 has a significant influence on the subsequent chances of gaining additional qualifications. The results suggest that after controlling for sample selection effects, there is no significant difference between young people at FE and YTP; in other words, there is nothing associated specifically with FE or YTP *per se*, which results in young people being more or less likely to get additional qualifications. This is surprising because there are some very large raw differences between the two groups of young people, particularly with respect to qualifications at NVQ level 3. Such raw differences are statistically significant in standard single equation models of qualifications attainment, but not in the models which control explicitly for sample selection effects. These results indicate the importance of controlling for sample selection effects; failure to do so in this case, could potentially have led to misleading advice to policy makers on the relative merits of FE and YTP.

The results showed that there is a strong relationship between initial standards of general education and subsequent success in vocational training. In particular, the evidence suggested that standards of vocational training can be more easily improved if educational standards at the schooling stage are sufficiently high. This is important from a policy point of view because it reinforces the need to ensure that all young people leave school with a minimum threshold level of education. This will ensure that they are enabled to proceed successfully through further education or vocational training and into employment.

Finally, the research has shown that an important reason why many young people at FE or YTP do not get any qualifications, is that they leave before completing their course. A significant minority of these, particularly YTP students, end up unemployed. This suggests that in terms of improving the contribution of FE and YTP towards the National Education and Training Targets, it would be important for future research to establish the reasons why young people leave FE and YTP early, particularly for those who end up unemployed. There are a number of possible reasons which may provide interesting areas for future research: firstly, the nature and extent of careers guidance

which the young people get at school may, in some cases, be inadequate. Such arguments have been made in relation to drop-out from academic and vocational courses amongst 16-19 year olds in England and Wales (see, for example, HMSO, 1993). Secondly, and related to this, there are currently pressures on FE colleges and vocational training providers to compete with each other to attract young people. There is a danger that, in some cases, such pressures may lead to young people being directed into courses which are not appropriate to their abilities and aspirations. Similar concerns have already been raised with respect to the work of the Training and Enterprise Councils (TECs) in England and Wales (see, for example, Ploszajska, 1994). Some qualitative evidence consistent with this for Northern Ireland was found in interviews with a small sample of marginalized young people, conducted as part of the Status 0 research (Loudon et al., 1997). Thirdly there may be problems associated with the content and administration of courses both in FE and YTP. For example, in the above-mentioned qualitative study, one young person said of a training placement, 'You didn't do training or anything, you just brushed the floor and that', and another said, 'I worked in a car place. The nearest I got to touching a car was when the exhausts came in and I had to unload the van.' (Loudon et al., 1997, p55). Although such concerns relate to young people in YTP, it would be worth investigating the extent to which young people in FE become disappointed or frustrated with the content or administration of their course.

APPENDIX 6A: PROGRESS TOWARDS THE NATIONAL TARGETS

It is important to note at the outset that there are some problems with figures for Northern Ireland based on the Labour Force Survey relating to the attainment of FT3. The main reason is that the LFS is residence based, and so it credits the achievements of many Northern Ireland domiciled students studying in Great Britain to Great Britain rather than Northern Ireland. This is particularly important for Northern Ireland because the number of young people leaving the Province each year for higher education is always considerably greater than the number entering from GB and elsewhere to attend one of the local universities. For this reason, the Department of Education for Northern Ireland (DENI) and the Training and Employment Agency (T&EA) have produced a set of alternative estimates of the attainment of FT3 in Northern Ireland over the period 1992-94. These estimates are based on administrative data on the qualifications obtained amongst young people at school, in Further Education and in vocational training. These figures show that the attainment of FT3 in Northern Ireland is considerably higher than suggested by LFS-based figures. Such figures have, to date, only been produced for the three year period 1992-94. Nevertheless, the figures can be used to adjust the time series figures for 1985-96 taken from the Labour Force Survey; this is the approach adopted in the present analysis.

Alternative Estimates for the Attainment of Foundation Target 3 in Northern Ireland

		1992	1993	1994
NI	LFS-based estimates	34	34	40
	DENI/T&EA estimates	41	43	43
UK		35	38	41

Source: LFS-based estimates are taken from DfEE (1996a), and DENI/T&EA estimates were supplied directly by DENI and T&EA.

Notes: DENI/T&EA estimates are based on information for the academic year, i.e. 1992 figures relate to the academic year 1991/92. LFS-based figures relate to the Spring of each year. Figures are expressed as a proportion of the 21 year old population.

Progress Towards Foundation Target 1 in the UK

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NI	42	46	46	46	49	51	53	59	63	68	70	71
EN	45	44	44	48	50	51	54	58	62	66	67	68
WW	41	39	39	41	43	48	51	56	60	64	60	61
SC	53	56	56	58	61	63	65	71	70	70	71	77
UK	46	45	48	48	51	52	55	59	62	66	67	68

Notes: Figures are based on information taken from the Labour Force Survey. Figures for 1985-94 are taken from DfEE (1996a) and those for 1995 and 1996 were supplied directly from the Department for Education and Employment. Note that there are some small discontinuities in the series at 1993 and 1996. Figures are expressed as a proportion of 19-21 year olds and relate to the Spring of each year.

Progress Towards Foundation Target 3 in the UK

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NI	31	33	35	36	34	35	39	41	43	43	40	47
EN	27	25	28	27	29	31	31	35	38	41	45	44
WW	19	20	24	23	23	23	24	30	32	39	40	41
SC	34	33	36	35	40	40	43	52	49	50	51	50
UK	27	26	29	27	29	31	31	35	38	41	45	44

Notes Figures for Great Britain are based on information taken from the Labour Force Survey. Figures for 1985-94 are taken from DfEE (1996a) and those for 1995 and 1996 were supplied directly from the Department for Education and Employment. Figures for Northern Ireland are based on matching information in DfEE (1996a), with information for the period 1992-94 supplied directly by DENI and T&EA. Note that there are some small discontinuities in the series at 1993 and 1996. Figures are expressed as a proportion of 19-21 year olds and relate to the Spring of each year.

APPENDIX 6B: CODING ISSUES RELATING TO VOCATIONAL QUALIFICATIONS

The Failure to record the level / type of vocational qualifications

Some young people who indicated that they got a vocational qualification, did not indicate the particular level or type of the qualification. This is likely to be because the young person did not know or else could not remember the particular level of qualification which he or she had obtained. Non-recording happened to some extent amongst young people at both FE and YTP. For example, amongst young people at FE who got one of the main vocational qualifications, slightly less than three out of ten (27 per cent) did not specify the level of the qualification; the corresponding figure for young people at YTP was slightly higher at 33 per cent (see below).

Failure to specify the level of the vocational qualification occurred for each of the main vocational qualifications, albeit to differing degrees. For example, BTEC examinations were amongst the most common taken by FE students; of the 96 FE students who said that they had got a BTEC qualification, 33 (around one third) indicated that they had got a BTEC exam, but did not indicate which level or type they had attained. Similarly, NVQs were commonly taken by students at YTP; amongst the 76 young people in the sample who indicated that they had obtained an NVQ qualification, 8 (around one tenth) did not specify which level of NVQ they had obtained.

The Extent to Which Details about Vocational Qualifications were Specified

	FE Students		YTP Students	
	Sample Number	Per Cent	Sample Number	Per Cent
RSA specified	11	6	5	4
RSA not specified	3	2	1	-
City & Guilds specified	3	2	6	5
City & Guilds not specified	5	3	27	22
BTEC specified	63	33	1	-
BTEC not specified	33	17	4	3
GNVQ specified	35	18	1	-
GNVQ not specified	9	5	0	-
NVQ specified	29	15	68	56
NVQ not specified	3	2	8	7
Total not specified	53	27	40	33
All	194	100	121	100

Source: Status 0 Survey

Notes: Figures relate to those young people who got one of the main vocational qualifications in FE or YTP. Figures may not add to exactly one hundred because of rounding

A number of approaches can be adopted towards young people for whom the level of vocational qualifications was not specified:

1 Exclude them from the sample.

2 Explicitly code them as 'don't know' in any analysis of equivalent NVQ levels.

3 Make a general assumption about what level they had attained. For example, a straightforward working assumption might be that all of those for whom the level was not recorded, had achieved the equivalent of NVQ level 1 in the respective qualifications.

4 Make a more specific assumption about what level they had attained based on sample information on what similar young people had managed to achieve. This is the approach which has been adopted in the present analysis. For example, we know that of the 33 FE students who got BTEC examinations for which the level was unknown, 7 entered FE with no qualifications, 7 had achieved 1-4 GCSEs (A-C) and 9 had achieved 5+ GCSEs (A-C). From the information on those with a known level of BTEC we know that the majority of those who went into FE with no qualifications and did a BTEC exam, studied for the BTEC First Diploma / Certificate (equivalent to NVQ level 2). For those who entered FE with at least 1-4 GCSEs (A-C), however, the vast majority were studying for BTEC National Diploma / Certificate (equivalent to NVQ level 3). Given this, it would seem plausible to assign a BTEC First Diploma / Certificate to those who entered FE with no qualifications, and to assign BTEC National Diploma / Certificate to those who entered with at least 1-4 GCSEs (A-C). The tables below show precisely how a level was assigned to each type of vocational qualification, for FE students and YTP students respectively.

Assigning a Level for Vocational Qualifications where a Level was not Specified: FE students

TYPE OF VOCATIONAL QUALIFICATION FOR WHICH LEVEL NOT SPECIFIED	NO. OF GCSEs GAINED AT SCHOOL (A-C)	LEVEL ASSIGNED TO VOCATIONAL QUALIFICATION ASSIGNED
RSA	None (n=1)	RSA DIPLOMA / CERTIFICATE (level / stage 2)
	1-4 GCSEs (A-C) (n=1)	RSA DIPLOMA / CERTIFICATE (level / stage 2)
	5+ GCSEs (A-C) (n=1)	RSA DIPLOMA / CERTIFICATE (level / stage 2)
CITY & GUILDS	None (n=2)	CITY & GUILDS CRAFT / PART II
	1-4 GCSEs (A-C) (n=3)	CITY & GUILDS CRAFT / PART II
	5+ GCSEs (A-C) (n=0)	-
BTEC	None (n=7)	BTEC: FIRST DIPLOMA, FIRST CERTIFICATE
	1-4 GCSEs (A-C) (n=7)	BTEC: NATIONAL DIPLOMA, NATIONAL CERTIFICATE
	5+ GCSEs (A-C) (n=19)	BTEC: NATIONAL DIPLOMA, NATIONAL CERTIFICATE
GNVQ	None (n=1)	GNVQ INTERMEDIATE (level / stage 2)
	1-4 GCSEs (A-C) (n=3)	GNVQ INTERMEDIATE (level / stage 2)
	5+ GCSEs (A-C) (n=5)	GNVQ ADVANCED (level / stage 3)
NVQ	None (n=0)	-
	1-4 GCSEs (A-C) (n=3)	NVQ LEVEL / STAGE 2
	5+ GCSEs (A-C) (n=0)	-

Notes: 'n' refers to the sample size. For example, there was one young person in the sample who entered FE in October 1993 having obtained no GCSEs at school, and who indicated that they had got an RSA during their time at FE (but did not specify the level)

Assigning a Level for Vocational Qualifications where a Level was not Specified: YTP students

TYPE OF VOCATIONAL QUALIFICATION FOR WHICH LEVEL NOT ASSIGNED	NO. OF GCSEs GAINED AT SCHOOL (A-C)	LEVEL ASSIGNED TO VOCATIONAL QUALIFICATION
RSA	None (n=0)	-
	1-4 GCSEs (A-C) (n=1)	RSA DIPLOMA / CERTIFICATE (level / stage 2)
	5+ GCSEs (A-C) (n=0)	-
CITY & GUILDS	None (n=15)	CITY & GUILDS CRAFT / PART II
	1-4 GCSEs (A-C) (n=11)	CITY & GUILDS CRAFT / PART II
	5+ GCSEs (A-C) (n=1)	CITY & GUILDS CRAFT / PART II
BTEC	None (n=3)	BTEC: FIRST DIPLOMA, FIRST CERTIFICATE
	1-4 GCSEs (A-C) (n=1)	BTEC: FIRST DIPLOMA, FIRST CERTIFICATE
	5+ GCSEs (A-C) (n=0)	-
GNVQ	None (n=0)	-
	1-4 GCSEs (A-C) (n=0)	-
	5+ GCSEs (A-C) (n=0)	-
NVQ	None (n=5)	NVQ LEVEL / STAGE 2
	1-4 GCSEs (A-C) (n=3)	NVQ LEVEL / STAGE 2
	5+ GCSEs (A-C) (n=0)	-

Limitations Imposed by the Survey Date

As outlined above, the Survey date was in June 1995, and the young people had entered FE or YTP in the Autumn of 1993. This means that the figures presented above relate to the extent to which young people in FE and YTP got qualifications over the equivalent of two 'academic years'. All the figures used in this analysis relate to full-time students. In principle, therefore, it would have been possible for both YTP and FE students to have gained up to NVQ level 3 over the course of the survey period. As outlined above, NVQ level 3 is the equivalent of 2 or more A levels, and for most of the different types of qualifications (e.g. BTEC, City & Guilds etc), students are required to study for two years full time or three years part time (see, NCVQ, 1994 for the regulations regarding all the main vocational qualifications). It might be argued, however, that the survey date of June 1995 imposes some fundamental limitations on the nature and extent of the information on qualifications which the survey can provide. The basic problem is that many vocational courses finish around this time, and formal notification of whether or not

the qualification has been attained will not be received until later on in the Summer. It could be argued, therefore, that this has important implications for the recorded information relating to both whether or not the young person got qualifications, and also what level of qualifications the young person got. With respect to such arguments, the key thing to note is that all the main vocational qualifications tend to be continually assessed, with credits or unit passes being awarded throughout the year. This form of continual assessment, which takes place for all of the main vocational qualifications, makes it extremely unlikely that the survey date of June 1995 will result in a serious under-representation of the extent to which qualifications are obtained in FE and YTP and the level of qualifications obtained. In support of this conclusion, it is worth noting that FE students in Northern Ireland receive what is called a Student Report Form at the end of their final year of study (i.e. in the Spring). This provides a summary of all of the different credits / unit passes which they have received during their course of study. A copy of this form is also sent to the awarding body (e.g. BTEC, City & Guilds etc.) as evidence that the student has passed the requisite number of units. On the basis of this, the awarding body sends formal certification in the Summer. Since students receive their student report forms in May or June, this makes it highly unlikely that the survey date imposes any serious limitations on the accuracy of the information on qualifications. Contacts with a number of FE college administrators have confirmed this. On this point it is also worth noting that the survey figures on the overall proportion of young people getting qualifications, are consistent with figures derived from administrative sources. This provides another reason for being confident in the accuracy of the survey figures.

APPENDIX 6C: LIMDEP COMMANDS FOR ORDERED PROBIT MODEL

The key LIMDEP commands which were used to estimate the ordered probit model with sample selection for 3 ordered outcomes (y=0, 1, 2) are shown below.

```
probit; lhs=T; rhs=z$
matrix; tcoef = B$
ordered; lhs = y; rhs=x$
matrix; ycoef = B$

create; if (y = 0 & T = 1) m0 = 1; (else) m0 = 0$
create; if (y = 1 & T = 1) m1 = 1; (else) m1 = 0$
create; if (y = 2 & T = 1) m2 = 1; (else) m2 = 0$
create; if (y = 0 & T = 0) m3 = 1; (else) m3 = 0$
create; if (y = 1 & T = 0) m4 = 1; (else) m4 = 0$
create; if (y = 2 & T = 0) m5 = 1; (else) m5 = 0$

minimize;
start = ycoef, tcoef, 0.5, -0.5;
 labels = b1, .., bn, a1,..,  an, j, ρ ;
 fcn=
 f0=m0 * log (bvn( (-b1'x), (a1'z), (ρ ))) |

 f1=m1 *(log  (bvn( (j1-b1'x), (a1'z), (ρ)) -  bvn( (-b1'x), (a1'z), (ρ))) ) |

f2=m2*(log  (bvn( (1000), (a1'z), (ρ)) -  bvn( (j1-b1'x), (a1'z), (ρ)))) |

f3=m3 * log (bvn( (-b1'x), (-a1'z), (-ρ))) |

f4=m4 *(log  (bvn( ( j1-b1'x), (-a1'z), (-ρ)) -  bvn( (-b1'x), (-a1'z), (-ρ))  ))|

f5=m5*(log  (bvn( (1000), (-a1'z), (-ρ)) -  bvn( (j1-b1'x), (-a1'z), (-ρ)))) |

(f0+f1+f2+f3+f4+f5) $
```

APPENDIX 6D: CROSSTABULATIONS

Participation in YTP and FE

	Per cent of Sample in YTP or FE	
	YTP	FE College
Male (n=355)	59	41
Female (n=260)	42	58
Catholic (n=305)	53	47
Protestant (n=310)	51	49
Father Employed FT (n=356)	47	53
Father Unemployed / Other (n=259)	62	38
Mother Employed FT (n=144)	39	61
Mother Employed PT (n=132)	53	47
Mother Unemployed (n=41)	63	38
Mother Housework/Other (n=298)	57	43
Living with mother only (n=86)	51	49
Living with Father and Mother (n=259)	55	45
No Older Siblings (n=201)	44	56
1-2 Older Siblings (n=298)	56	44
3 or more Older Siblings (n=101)	53	47
No Younger Siblings (n=210)	54	46
1-2 Younger Siblings (n=304)	48	52
3 or more Younger Siblings (n=101)	58	42
Less than 20% in school with 5+ GCSEs (A-C) (n=210)	66	34
20-40% in School with 5+ GCSEs (A-C) (n=304)	51	49
more than 40% in School with 5+ GCSEs (n=141)	34	67
Attendance rate lt 91 per cent (n=275)	68	32
Attendance rate more than 91 per cent (n=340)	43	57
Sat Psychometric Tests (n=369)	62	38
Did not sit Psychometric Tests (n=246)	37	64
Less than 50% pupils tested in school (n=261)	39	61
More than 50% pupils tested in school (n=364)	61	39
Local unemployment lt 14% (n=179)	50	50
Local Unemployment 14-20% (n=182)	40	60
Local Unemployment 20-26% (n=116)	44	56
Local Unemployment more than 26% (n=138)	73	27
Belfast DC (n=74)	78	22
Derry DC (n=54)	72	28
North (n=67)	45	55
South (n=94)	54	46
East (n=170)	55	45
West (n=156)	47	53
	33	67
No GCSEs (grades A-C) (n=208)	77	23
1-4 GCSEs (grades A-C) (n=250)	49	51
5+ GCSEs (grades A-C) (n=157)	14	86

Source: Status 0 Survey
Notes: See Table 6.3 for variable definitions etc.

Getting Additional Qualifications

	Got Any quals	Got NVQ 2	Got NVQ 3	Average NVQ level obtained
	Per cent of group			Average
Female (n=260)	63	49	19	1.3
Male (n=355)	65	44	13	1.2
Catholic (n=305)	64	45	13	1.2
Protestant (n=310)	64	48	19	1.3
Father Employed FT (n=356)	70	48	20	1.4
Father Unemployed (n=174)	56	38	10	1.1
Father Other/Unknown (n=85)	54	33	10	1.0
Mother Employed FT (n=144)	74	51	20	1.5
Mother Employed PT (n=132)	71	48	16	1.4
Mother Unemployed (n=41)	30	21	5	0.6
Mother Housework/Other (n=298)	61	41	15	1.0
Living with mother only (n=86)	53	31	10	1.0
Living with Father and Mother (n=529)	66	45	17	1.3
No Older Siblings (n=201)	63	39	17	1.2
1-2 Older Siblings (n=298)	65	46	16	1.3
3 or more Older Siblings (n=116)	62	44	14	1.2
No Younger Siblings (n=210)	67	44	15	1.3
1-2 Younger Siblings (n=304)	64	44	17	1.3
3 or more Younger Siblings (n=101)	57	41	11	1.1
Less than 20% in school with 5+ GCSEs (A-C) (n=210)	61	38	11	1.1
20-40% in school with 5+ GCSEs (A-C) (n=304)	62	45	17	1.3
More than 40% in school with 5+ GCSEs (A-C) (n=141)	71	48	21	1.5
Attendance Rate less than 91 per cent (n=275)	58	36	8	1.0
Attendance Rate more than 91 per cent (n=340)	69	50	22	1.4
Grammar school	77	61	33	1.7
Secondary/Other school	62	40	13	1.2
Belfast DC (n=74)	51	24	0	0.8
Derry DC (n=54)	67	51	3	1.2
North (n=67)	56	36	19	1.2
South (n=94)	65	39	8	1.2
East (n=170)	65	42	19	1.3
West (n=156)	70	55	30	1.6
No GCSEs (grades A-C) (n=208)	54	35	2	0.9
1-4 GCSEs (grades A-C) (n=250)	68	51	14	1.3
5+ GCSEs (grades A-C) (n=157)	73	44	44	1.7

Source Status 0 survey
Notes See Table 6.3 for variable definitions etc

APPENDIX 6E: ADDITIONAL ECONOMETRIC RESULTS

Marginal Effects for Model 1 in Table 6.5

	y=0	y=1	y=2
One	0.14	0.02	-0.15
YTP	0.02	0.002	-0.02
Catholic	0.03	0.004	-0.03
Female	-0.01	-0.002	0.02
Father employed Full time	-0.03	-0.005	0.04
Mother Employed Full time	-0.01	-0.001	0.01
Living wit h father and mother	-0.09	-0.01	0.11
Older Siblings	0.00	0.0003	-0.00
Younger Siblings	0.03	0.004	-0.04
School Performance-% of leavers with 5+ GCSEs (A-C)	0.00	0.000	-0.0003
School Performance- Attendance rate	0.00	-0.004	0.004
Grammar	-0.06	-0.01	0.07
Belfast DC	0.22	0.03	-0.25
Derry DC	0.06	0.01	-0.07
East	0.13	0.02	-0.15
South	0.15	0.02	-0.17
North	0.25	0.03	-0.28
1-4 GCSEs	-0.10	-0.01	0.11
5+ GCSEs	-0.19	-0.03	0.22

Notes: See notes to Table 6.5

Marginal Effects for Model 3 in Table 6.5

	y=0	y=1	y=2	y=3
One	0.07	0.01	-0.03	-0.05
YTP	0.08	0.01	-0.03	-0.05
Catholic	0.04	0.01	-0.02	-0.03
Female	0.01	0.00	-0.003	-0.01
Father employed Full time	-0.04	-0.00	0.02	0.03
Mother Employed Full time	0.02	0.00	-0.01	-0.01
Living wit h father and mother	-0.08	-0.01	0.03	0.05
Older Siblings	0.00	0.00	-0.00	-0.00
Younger Siblings	0.03	0.00	-0.01	-0.02
School Performance-% of leavers with 5+ GCSEs (A-C)	0.00	0.00	-0.00	-0.00
School Performance- Attendance rate	-0.00	-0.00	0.00	0.00
Grammar	-0.09	-0.01	0.01	0.07
Belfast DC	0.23	0.04	-0.1	-0.16
Derry DC	0.12	0.02	-0.05	-0.08
East	0.12	0.02	-0.05	-0.08
South	0.17	0.03	-0.08	-0.12
North	0.24	0.04	-0.10	-0.17
1-4 GCSEs	-0.11	-0.02	0.05	0.07
5+ GCSEs	-0.30	-0.05	0.14	0.21

Notes: See notes to Table 6.5

Ordered Probit Models Incorporating Time Spent in FE and YTP

	Model E1		Model E2	
	Coef	t	Coef	t
Constant	-0.73	-0.31	1.55	0.68
YTP	-0.08	-0.64	0.02	0.18
Catholic	-0.17	-1.38	-0.08	-0.71
Female	0.14	1.28	-0.01	-0.13
Father Employed Full Time	0.10	0.80	0.11	0.92
Mother Employed Full Time	-0.01	-0.04	0.06	0.50
Living with Father and Mother	0.25	1.72	0.30	2.37
Older Siblings	0.01	0.16	-0.01	-0.17
Younger Siblings	-0.07	-1.94	-0.09	-2.31
Leavers with 5+ GCSEs	-0.00	-0.37	0.00	0.11
Attendance rate	0.00	0.08	-0.00	-0.04
Grammar school	0.30	0.92	0.16	0.52
Belfast DC	-0.62	-3.03	-0.60	-3.10
Derry DC	-0.14	-0.67	-0.61	-1.70
East	-0.35	-2.16	-0.38	-2.53
South	-0.37	-2.12	-0.42	-2.45
North	-0.80	-4.12	-0.60	-3.11
1-4 GCSEs	0.31	2.42	0.24	2.06
5+GCSEs	0.39	2.41	0.55	3.71
Time Spent in Activity	0.00	7.88	-	-
MU (1)	0.60	11.72	1.04	12.73
MU (2)	-	-	1.59	18.04
Log likelihood	-532		-669	
Log likelihood (constant slopes)	-599		-701	
	0.11		0.05	

Notes See notes to Table 6.5 for variable definitions etc

In Model E1 the dependent variable has 3 ordered outcomes = 0 if got no qualifications; = 1 if got NVQ level 1 qualification; =2 if got NVQ level 2 or above qualification.

In Model E2 the dependent variable has 4 ordered outcomes =0 if left YTP or FE early and got no qualifications; =1 if did not leave early and got no qualifications; =2 if got NVQ level 1 qualification and =3 if got NVQ level 2 or above qualification

CHAPTER 7

HIDDEN MALE UNEMPLOYMENT IN NORTHERN IRELAND

7.1 INTRODUCTION

In recent years there has been growing research evidence in the UK to suggest that official unemployment figures do not accurately reflect the true extent of joblessness. In the academic literature, such concerns have been raised at a national level by Schmitt and Wadsworth (1994) and Disney and Webb (1991), and at regional and local levels by Forsythe (1995), Green (1995) and Beatty and Fothergill (1996). More recently, within the context of the introduction of the Job Seekers Allowance in October 1996, the issue has received renewed attention and has stimulated lively debate, not least in the British and Northern Irish press (see, for example, Guardian, 1997, Irish News, 1997a and 1997b). A key feature of the debate is that the extent of joblessness has been investigated by analysing figures on unemployment and economic inactivity, focusing on the main components of economic inactivity such as, for example, 'discouraged workers', long-term sickness and early retirement. One of the main findings of the studies is that, in many cases, official figures on unemployment underestimate the true extent of joblessness because they ignore these important components of economic inactivity. The findings of such studies have led some to prefer the use of figures on 'non-employment rates' (i.e. the unemployed plus the economically inactive as a proportion of the population), along with terms such as 'hidden' or 'disguised' unemployment (see, for example, OECD, 1992, p42ff and OECD, 1993, p6ff).

The main aim of this chapter is to investigate the nature and extent of hidden male unemployment in Northern Ireland and in different local areas within Northern Ireland. The outline of the chapter is as follows: Section 2 discusses alternative definitions and measures of unemployment, and examines the different approaches which have been used to estimate the extent of hidden unemployment. The remainder

of the chapter is in four main sections, each of which deals with a particular component of hidden unemployment, namely long-term sickness (Section 3), early retirement (Section 4), government employment and training schemes (Section 5), and unemployed teenagers (Section 6). Section 7 summarises the findings of the analysis, and discusses their implications for the recent changes in eligibility criteria for unemployment-related benefits.

7.2 BACKGROUND

7.2.1 Defining and Measuring Unemployment

Issues around the definition and measurement of unemployment have received considerable attention in the academic and policy literature in recent years. Much of the academic debate has focused on, firstly, explaining what is meant by unemployment and, secondly, describing how the concept can best be measured. Most definitions of unemployment contain three main elements, namely (a) being out of work, (b) being available for work, and (c) actively seeking work. The latter is crucially important because it is taken as signalling a formal attachment to the labour force; this is considered a prerequisite in definitions of unemployment developed in the theoretical literature (see Weiss and Fishelson, 1996 for an overview of theoretical contributions). Such definitions are 'operationalised' in terms of a number of official measures. The two main measures currently used on a regular basis in the UK are the 'Claimant Count' and the 'ILO' definition of unemployment (see Box 7.1). The Claimant Count is a simple count of the number of people claiming unemployment-related benefits; in order to claim such benefits, individuals must be available for work and must show evidence of active job search. The 'ILO' definition of unemployment is recommended by the International Labour Organization (ILO); it is gathered using information from household surveys, and is a count of the number of people who are out of work, actively seeking work and available for work. It is recognised internationally, and is used by organisations such as the OECD and the EU to produce standardised figures for international comparisons.

BOX 7.1: OFFICIAL MEASURES OF UNEMPLOYMENT

Claimant Count

Definition
An individual is unemployed if she or he is claiming the Jobseekers Allowance (formerly Unemployment Benefit or Income Support), or credits for National Insurance contributions. In Northern Ireland the figures are derived from the records of claimants held at Social Security Offices. In order to claim, individuals must declare themselves as being out of work (although it is possible to work for a small number of hours each week if earnings fall below certain 'disregard' limits), available and capable for work, and actively seeking work.

Key Features
(a) coverage - all unemployed claimants, (b) basis of definition - administrative regulations, (c) spatial disaggregation - figures are published for the 12 Travel-to-Work Areas (TTWAs) and the 26 Local Government Districts (LGDs) in Northern Ireland, (d) frequency - monthly.

ILO Unemployment

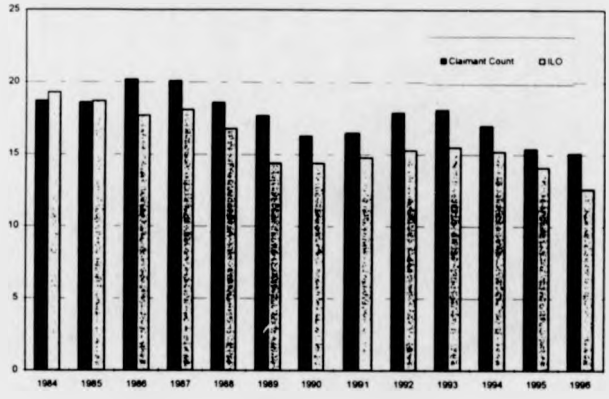
Definition
An individual is unemployed if he or she (a) has not done any paid work in the previous week (b) is able to start work within the next two weeks, and (c) has searched for work during the previous four weeks, or is waiting to start employment.

Key Features
(a) coverage - survey of around 3,000 households in Northern Ireland, (b) basis of definition - interviewer applying internationally standardised definitions, (c) spatial disaggregation - all of Northern Ireland; sub-regional figures not published, (d) frequency - quarterly since Winter 1994; prior to that, annual.

In Northern Ireland, as in the rest of the UK, the Claimant Count and ILO measures of unemployment have followed the same trend since the mid-1980s (Figure 7.1). In Northern Ireland, the Claimant Count has generally been higher than ILO unemployment by an average of around 2 percentage points of the male workforce, corresponding to around 8,000 people. The overall picture is similar in the UK, although the differences are not as large. One of the main reasons for the difference is that the claimant count includes some jobless men who, for a variety of reasons, do not meet the criteria for ILO unemployment, particularly the job search criteria. A large number of these are 'discouraged workers' who indicated in the LFS that they were not looking for work because they believed that no jobs were available. The incidence of discouragement amongst males in Northern Ireland is relatively high compared to other regions of the UK. For example, in 1993 1.8 per cent of the 16-64 male population were classified in the Labour Force Survey as discouraged workers

compared to, for example, 0.5 per cent in Scotland, 0.7 per cent in Wales and 0.60 per cent in the North of England (figures taken from Forsythe, 1995).[48]

Figure 7.1: Claimant Count and ILO Unemployment in Northern Ireland: Males 1984-96



Source NOMIS, DED (1996)
Notes Claimant figures are seasonally adjusted for April of each year. ILO figures are seasonally adjusted and are taken from the Spring quarter of the LFS for each year. They relate to all aged 16 and over.

7.2.2 Moving Towards a Broader Definition of Unemployment

The absence of discouraged workers from ILO measures of unemployment is a good illustration of a central premise underlying studies of hidden unemployment, namely that the official measures, discussed above, omit significant groups of jobless people of interest to both academics and policy makers (see Box 7.2). Studies of hidden unemployment, therefore, try to estimate the size of the main groups excluded from official measures. In doing this they have moved away from strict technical definitions of unemployment, towards a measure which accurately reflects the true extent of joblessness. For example, the Royal Statistical Society has stated that 'by the most common usage of the language, unemployment was what was experienced by people who want jobs and cannot get them' (House of Commons, 1996, p30).

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[48] Note that at the time of writing, figures for ILO unemployment for 1997 are not available. However, the expectation is that the Claimant Count and ILO unemployment will be much closer for 1997 than for previous years. This is mainly because the stricter eligibility criteria for claiming benefits, introduced with the Job Seekers Allowance in 1996, are expected to reduce the number of non-active job seekers in the claimant count.

Similarly, Beatty and Fothergill (1996), in their study of joblessness in the Coalfields areas of England and Wales, described the unemployed broadly in terms of 'those who might reasonably expect to work in a fully-employed economy, whether or not they happen to be active job seekers.' (Beatty and Fothergill, 1996, p30).

BOX 7.2: GROUPS OF PEOPLE EXCLUDED FROM CLAIMANT COUNT AND ILO MEASURES OF UNEMPLOYMENT

Claimant Count

(a) those whose claim for benefit has been disallowed, (b) people on Government employment and training programmes - including 16 and 17 year olds, (c) full-time students, (d) partners of people who are registered unemployed, [1] (e) single parents claiming Income Support, [2] (f) people seeking work who are ineligible for benefit (for reasons other than those given above, e g. because their level of savings exceeds the threshold level), (g) people over 60 [3], (h) 16 and 17 year olds who are neither full-time students nor on Government employment and training programmes

ILO Definition

(a) people who have done a very small amount of part-time work in the relevant week (more than an hour) who may still be looking for jobs, (b) people who say they want a job, but are not looking for work because they are looking after a family or home, (c) people who say they want a job, but are not looking for work because they are long-term sick or disabled, (d) people who say they want a job, but have given up looking for work because they believe no job is available ('discouraged workers')

Source: House of Commons (1996)

Notes: [1] Only one partner can claim the Jobseekers Allowance (JSA). However, some partners of people claiming JSA may be claiming National Insurance Credits and therefore will be counted as unemployed.

[2] Single parents are not required to be available for work in order to receive unemployment-related benefits.

[1] JSA claimants aged over 60 do not have do be available for work to claim.

Underlying these studies is the fact that there are situations in which policy makers and researchers are more likely to be interested in broader measures of joblessness, as opposed to narrower measures of unemployment based on labour market theory. For example, the analysis presented below is based on research originally commissioned by the Training and Employment Agency (T&EA) in Northern Ireland, and conducted by the Northern Ireland Economic Research Centre (NIERC). The T&EA is asked on a regular basis to advise potential investors about where mobile investment should locate within Northern Ireland. One of the most basic factors which will influence this decision relates to how much labour is available in the local

area. The T&EA commissioned NIERC to investigate the extent to which official unemployment figures for Northern Ireland were limited in this respect, and how the problem varied between different geographical areas. It has also been argued by Gregg (1994) that, to the extent that unemployment rates are used as indicators of economic and social deprivation, then researchers require broader measures which include, for example, those who are not actively involved in job search.

7.2.3 Measuring Hidden Aspects of Unemployment

The Labour Force Survey (LFS) Approach

One of the most popular approaches to measuring hidden unemployment, involves using information from the LFS to estimate the size of the main groups excluded from official measures (e.g. Convery, 1996 and Green, 1995). Such studies tend to include the same or similar groups of people, for example (a) those on government training schemes, (b) those who said that they wanted to work, but had not satisfied the availability for work or the job search criteria, and (c) 'discouraged workers'.

One of the main advantages of this method is that data from the LFS are available on a quarterly basis and published regularly in official publications. In addition, because the LFS is a comprehensive survey of labour market activities, it is able to provide information on some particular categories of the hidden unemployed of interest to researchers, e.g. discouraged workers. However, this method has a number of drawbacks: firstly, because the LFS is a sample survey, it cannot be used to provide a geographically disaggregated picture of hidden unemployment. With some of the key categories of hidden unemployed identified in these studies, sample sizes tend to be quite small, even at an aggregate level. Therefore, the LFS method is less useful when the areas of interest are sub-regional, e.g. counties or TTWAs. This drawback is particularly important from the point of view of the present analysis because, as outlined above, one of the key aims was to investigate how hidden unemployment varied between different local areas in Northern Ireland. Secondly, and more generally, the LFS method depends crucially on the reliability and accuracy of the information provided by respondents. It would be plausible to argue that, in some cases, such information may not be accurate. In particular, responses to questions about economic status may inextricably linked to respondents' status with respect to

benefits. For example, most respondents who are in receipt of sickness-related benefits are likely to describe themselves as unable to work and are unlikely to indicate that they had looked for work, irrespective of whether or not this is an accurate reflection of their status. Similarly, those claiming unemployment-related benefits are highly likely to say that they have been actively looking for work, even if they haven't, since the LFS is an official (i.e. government) survey, and active job search is one of the eligibility criteria for benefits. Generally, therefore, since the survey is based on individual responses, this introduces an element of subjectivity into different aspects of LFS information, particularly relating to some of the key aspects of economic activity which are of interest in studies of hidden unemployment.[49]

The 'Benchmark' Approach

This approach overcomes some of the difficulties with the LFS method. It estimates the extent of hidden unemployment by (a) identifying the size of each of the main groups of economically inactive (those on schemes, the long-term sick, the early retired and women who fail to register), and (b) comparing the size of these groups in a particular area, or at a particular time, to a certain 'benchmark'. The methodology has perhaps been most useful for its treatment of the long-term sickness component of hidden unemployment. For example, Beatty and Fothergill (1996) specified what might be called a 'reference area', broadly defined as an area in which the labour market is generally tight, and the proportion of the working age population registered as sick is correspondingly low. They used the South East of England as their

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[49] In addition to these difficulties, the LFS method is also constrained to some extent by the precise way in which the relevant questions are framed in the survey. For example, the focus of the LFS method is the two questions relating to (a) whether or not the respondent would like work, and (b) whether or not they had looked for work. In the Northern Ireland LFS during the 1980s, people were only asked if they had looked for work if they had responded 'yes' to the question about wanting work. In the most recent surveys, however, the ordering of the questions was changed, and respondents were asked if they would like work, only if they had responded 'no' to the question about looking for work. Such administrative changes, particularly with respect to these key questions, makes it very difficult to use the LFS to construct an accurate picture of how some of the key groups of hidden unemployed have changed over time.

reference area, and the difference between registered sickness in the Coalfields areas and the South East was taken to be a form of hidden unemployment. They argued:

> *'Our view is that the rates of permanent sickness and early retirement that prevailed in the South East of England in 1991 probably represent the levels that can be achieved in a reasonably fully employed economy, and that excesses over this level are a form of hidden unemployment.'* (Beatty and Fothergill, 1996, p635)

By identifying a plausible 'benchmark', therefore, this method overcomes some of the problems associated with subjective responses which are encountered in the LFS method. In addition, it tends to be based on Census or administrative data sources, which means that the extent of hidden unemployment in reasonably small geographical areas can be investigated. A variation of this method is used below to calculate the long-term sickness component of hidden unemployment. The main disadvantage, however, is that the results from this method depend crucially on the assumptions which are made about what is an appropriate 'benchmark'. For example, between 1981 and 1991 the number of males registered as permanently sick in the South East nearly doubled, increasing from 110,731 to 213,305. With respect to Beatty and Fothergill (1996), therefore, it might be argued, that the 1981 level of sickness in the South East would provide a better indicator of what can be expected in a fully employed economy, because it pre-dates the massive increase in registered sickness which took place throughout the UK (discussed below). In addition, it could be argued that using the South East is inappropriate in principle, because the Coalfields areas have traditionally had relatively high levels of unemployment and, given this, we would expect levels of genuine sickness to be relatively high. The particular benchmark used below has been chosen in such a way as to overcome such difficulties. Of course, there are no 'rights' or 'wrongs' and, in principle, any benchmark is open to criticism. However, it is important to make the point at the outset that the results from this method are sensitive to which particular benchmark is chosen.

7.3 LONG-TERM SICKNESS

7.3.1 Changes in Sickness Over Time

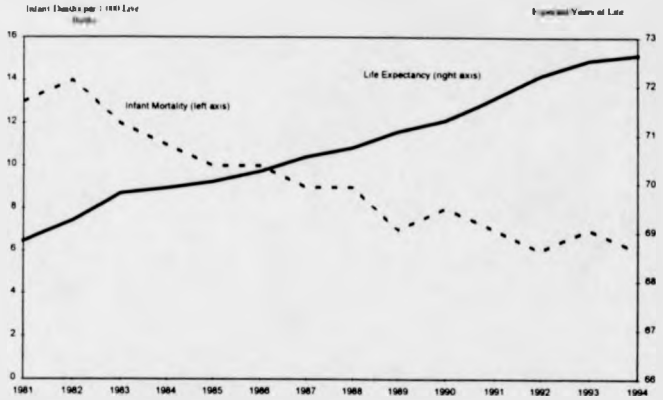
The number of people describing themselves as long-term sick or disabled increased significantly in the UK and in most other industrialised countries during the 1980s (Blöndal and Pearson, 1995). In Northern Ireland, the number of men describing themselves as long-term sick in the Census of Population increased by around 16,000 between 1981 and 1991, during which time unemployment changed very little (Table 7.1). This is somewhat surprising since according to objective medically based measures (e.g. infant mortality rates or life expectancy), health status in Northern Ireland improved significantly over the same period (Figure 7.2).

Table 7.1: Economic Activity and Inactivity Amongst Males in Northern Ireland: 1981 and 1991

	1981		1991	
	Number	Per cent	Number	Per cent
Employed	322115	62.8	329400	58.9
Unemployed	76269	14.9	77326	13.8
Retired	64614	12.6	76692	13.7
Students	30549	6.0	35246	6.3
Sick	18653	3.6	34800	6.2
Others Inactive	843	0.2	5707	1.0
All	513043	100.0	559171	100.0

Source 1981 and 1991 Census of Population
Note. Figures relate to the post-16 population. Figures may not add to exactly 100 per cent due to rounding

Figure 7.2: Infant Mortality and Male Life Expectancy in Northern Ireland: 1981-94[50]



Source: Northern Ireland Annual Abstract of Statistics, various issues

Notes: The infant mortality rate is given as the number of infant deaths in a particular year divided by the total number of live births in that year and multiplied by 1,000. Life expectancy figures are given as the average expectation of life if someone born in the particular year was subject to the death probabilities indicated by the mortality records of those years

The increases in registered sickness can be accounted for mainly in terms of people staying on sickness-related benefits for longer periods, as opposed to larger numbers of people claiming such benefits for the first time. For example, between 1985 and 1995 the total number of people (males and females) claiming sickness-related benefits more than doubled, increasing from 46,000 to 95,000 (see Appendix 7A). During this time the proportion of claims which were of 6 months or more duration increased from 75 per cent to 90 per cent, whereas the number of new claims (in

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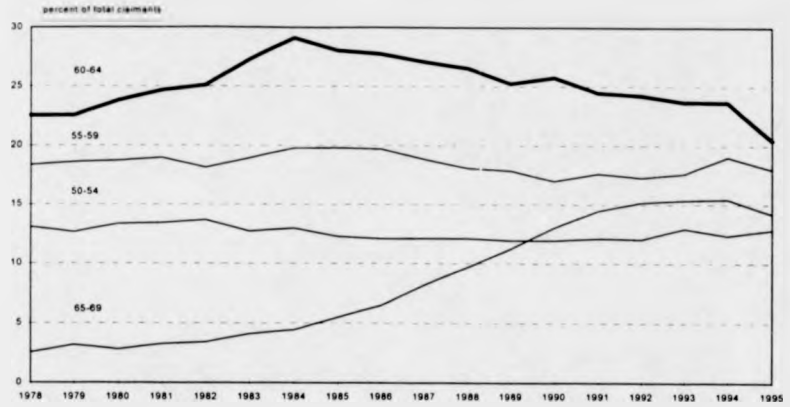
50 Standard measures of the overall health status of the population such as those presented above are, of course, open to criticism. For example, mortality rates reflect the incidence of death amongst the population and not the incidence of ill health. However, it is generally accepted that the mortality rate, particularly infant mortality, is strongly positively correlated with ill health amongst the live population (see Allsop, 1995 for a review). Figures on morbidity - the extent of disease and sickness amongst the live population - are preferable, but have generally been difficult and costly to obtain. In England, for example, as part of the so-called 'Health of the Nation' strategy, the government commissioned the first Health Survey for England in the early 1990's, the main aim of which was to collect information on the extent of cardiovascular disease and its associated risk factors, which had been hitherto unavailable (see HMSO, 1992; Breeze et al., 1994).

weekly averages) actually fell slightly from 1,400 to 1,100.[51] A similar picture emerges elsewhere in the UK (see Berthoud, 1995). Why, then, were people staying on sickness benefits for longer periods? Firstly, as discussed in Blöndal and Pearson (1995), people face a degree of choice between claiming sickness benefits and unemployment benefits. For example, if they have the option, some individuals may prefer to stay on sickness benefits, either because benefit income levels are higher than on unemployment benefit, or else because job search criteria are generally not part of the eligibility criteria. Secondly, a recent qualitative study conducted in England has shown that General Practitioners (GPs) have had a key role to play (Ritchie et al, 1993). In particular, it was found that GPs were of the firm view that the majority of Invalidity Benefit claimants would continue to claim until, or beyond the retirement age. One of the reasons given for this was the deterioration of the labour market during the 1980s, particularly for older workers, and the subsequently low re-employment chances of those on long-term sickness benefits. Thirdly, and related to this, during the 1980s, claiming sickness-related benefits became an increasingly popular route for people entering retirement. This is evident from the age profile of claimants which shows that in the 1980s there was a significant increase in the proportion of claimants aged 65 and over (Figure 7.3). This is related to the fact that throughout the UK at this time, Invalidity Benefit was tax free (unlike the State Pension), and could be claimed up to five years after the age of 65, if the claim began before then.

[51] Figures provided directly by the Department of Social Security (NI).

Figure 7.3: The Age Profile of Claimants of Sickness Related Benefits: Males, 1978-1995



Source: Department of Social Security (NI)

7.3.2 Spatial Differences in Sickness and Unemployment

There is a strong positive relationship between unemployment and sickness amongst different areas in Northern Ireland, i.e. generally speaking, in high unemployment areas a relatively high proportion of the population is registered as long-term sick or disabled (Figure 7.4). It is likely that this relationship can be explained, mainly, in terms of differences in objectively defined sickness. For example, in high unemployment areas, incomes are lower, diets tend to be less healthy, and the housing stock is of poorer quality; all such factors lend themselves towards a higher incidence of sickness. In addition, the experience of unemployment has been shown to have a causal influence on mental illness and depression which, therefore, are likely to be relatively high in areas of high unemployment (Warr, 1987). The key point is that, whether through the influence of a third exogenous factor, or because of unemployment itself, the spatial patterns shown in Figure 7.4 are likely to reflect genuine differences in the incidence of sickness between high and low unemployment areas.[52]

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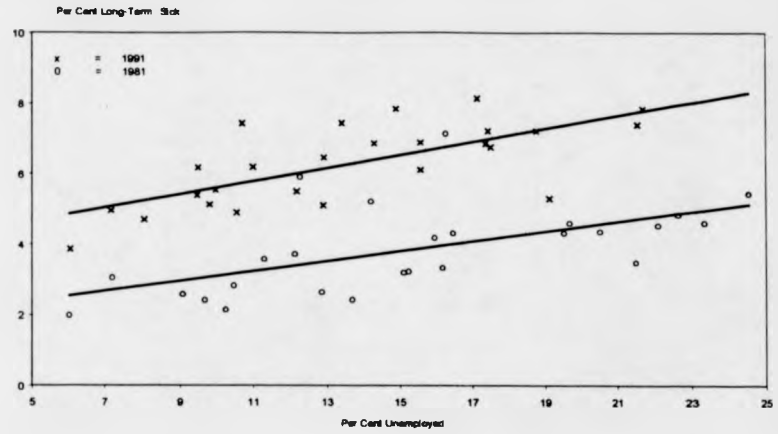
[52] This is consistent with the recent reviews of the literature on the links between unemployment and health (e.g. OHE, 1993 and Allsop, 1995).

Figure 7.4: Long-Term Sickness and Unemployment Amongst Males in Northern Ireland Local Government Districts: 1981 and 1991



Source: 1981 and 1991 Census of Population

Notes: Figures are expressed as a per cent of the post-16 population. The trend lines fitted through the data are Ordinary Least Squares (OLS) regression lines. The regression line for 1991, along with corresponding diagnostics is as follows: $y=3.7+0.19x$; R^2 =0.50; t statistics for the constant and slope coefficients are 6.8 and 4.9 respectively; the White heteroscedasticity test statistic is 0.34, rejecting the null and indicating no heteroscedasticity; the F statistic for the overall significance of the regression is 23.7, rejecting the null of insignificance. The corresponding figures for the 1981 regression line are: $y=1.7+0.14x$; $R^2=0.34$; t statistics=2.6 and 3.5; White test statistic =2.2; F=12.2. Again, heteroscedasticity and insignificance of the regression are rejected.

7.3.3 Estimating the Sickness Component of Hidden Unemployment

A variation of the 'benchmark' method, discussed above, is used in the present analysis to estimate the long term sickness component of hidden unemployment. Details of this are outlined in Box 7.3. Intuitively, it involves assuming that the amount of objectively defined sickness in each local area is the same, for a given level of unemployment, as the 1981 level. Any amount of registered sickness over and above this is considered to be a form of hidden unemployment.[53] This overcomes two of the main difficulties, with the Beatty and Fothergill (1996) method, outlined above. Firstly, using 1981 figures means that the benchmark relates to a time before

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53 For example, consider the Castlereagh area of Belfast in which the male unemployment rate was 7.2 per cent both in 1981 and 1991. The proportion of the population registered as long-term sick in this area increased from 3.0 per cent in 1981 to 4.9 per cent in 1991. Using the present methodology, therefore, the amount of objectively defined sickness is taken to be 3.0 per cent, i.e. the 1981 level. The difference between the 1991 and 1981 level of registered sickness (1.9 percentage points) is added to the estimates of hidden unemployment.

the major increases in long term sickness took place.[54] Secondly, unlike Beatty and Fothergill (1996) this method controls explicitly for the positive relationship between unemployment and objectively defined sickness, by taking 1981 levels of registered sickness in each local area as a reasonably accurate picture of objectively defined sickness. Finally, it should be noted that this method produces rather conservative estimates because, on account of the need to use comparable data from the Census, the key coefficients are derived on the basis of a comparison of sickness levels in 1981 and 1991. Although the estimated coefficients are applied to 1996 population figures (see Box 7.3 below), larger estimates of hidden unemployment would be derived if 1981 figures on sickness were compared to figures for 1996, as opposed to 1991.

[54] Note that a range of alternative benchmarks were also experimented with, namely (a) the Local Government District within Northern Ireland which has the lowest incidence of sickness (i.e. North Down), (b) the Standard Planning Regions in GB which have the lowest incidence of sickness (i.e. the South East and East Anglia), and the counties in GB which have the lowest incidence of sickness (Berkshire, Buckinghamshire, Oxfordshire and Surrey).

BOX 7.3: DERIVING THE LONG-TERM SICKNESS COMPONENT OF HIDDEN UNEMPLOYMENT

Estimating Objectively Defined Sickness

Let α_i^o be the estimate of objectively defined sickness in Local Government District (LGD) i, i.e. the proportion of the post-16 population classified as long-term sick or disabled according to objectively defined medical criteria. The methodology involves assuming that the amount of objectively defined sickness in each LGD is the same, for a given level of unemployment, as the 1981 level. Algebraically, this involves the following calculation:

$$\alpha_i^o = (\alpha_i^{81} / U_i^{81}) U_i^{91}$$

where

- α_i^{81} is the proportion of the post-16 population registered as long-term sick or disabled in the 1981 Census of Population
- U_i^{81} is the proportion of the post-16 population registered as unemployed in the 1981 Census of Population
- U_i^{91} is the proportion of the post-16 population registered as unemployed in the 1991 Census of Population

Estimating the Long-Term Sickness Component of Hidden Unemployment

The long-term sickness component of hidden unemployment in LGD_i (S_i) is calculated as follows:

$$S_i = (\alpha_i^r - \alpha_i^o) P_i \; s$$

where

- α_i^r is the proportion of the post-16 population in LGD i who were registered as long-term sick in the 1991 Census of Population
- α_i^o is the estimate of the number of objectively defined sick in LGD i, derived above
- P_i is the post-16 population in LGD i in the year which is being investigated (in this case 1996).
- s is the proportion of the registered long-term sick in Northern Ireland who were under retirement age

7.3.4 Main Findings

The estimates suggest that there are approximately 15,500 males in Northern Ireland registered as long-term sick who can be considered to be hidden unemployed (Table 7.2). This represents slightly more than one fifth (22.9 per cent) of the total number of claimants in 1996, and nearly 4 per cent of the economically active population.

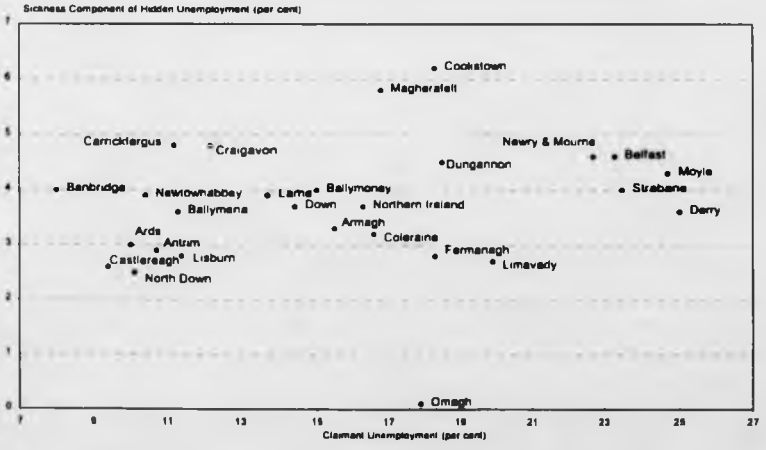
Table 7.2: The Long-Term Sickness Component of Hidden Male Unemployment (Northern Ireland Estimates for 1996)

	Long-Term Sick who are Hidden Unemployed
- total number	15,500
- as proportion of claimants	22.9
- as proportion of economically active	3.7
- as proportion of post-16 population	2.6

Source: NIERC

There is a reasonable degree of variation in the extent of the long-term sickness component of hidden unemployment between different local areas in Northern Ireland (Figure 7.5). However, there is no strong correlation between registered unemployment and the estimates of the long-term sickness component of the hidden unemployment for either males and females.

Figure 7.5: The Long-Term Sickness Component of Hidden Male Unemployment and Registered Male Unemployment (Northern Ireland Local Government Districts)



Source: NIERC
Notes: Figures are expressed as a per cent of the economically active population

7.4 EARLY RETIREMENT

7.4.1 The Extent of Early Retirement in Northern Ireland

The number of early retired males in Northern Ireland is relatively small at around 8,000 (Table 7.3). This represents around 10 per cent of all retired males and around 1.5 per cent of the post-16 population. Early retirement is lower in Northern Ireland than in any other region of the UK; for example, according to the 1991 Census of Population, 1.5 per cent of the post-16 population in Northern Ireland were early retired, compared to 1.9 per cent in Scotland, 2.6 per cent in Wales and 2.4 per cent in the North of England. The main implication of the low incidence of early retirement in Northern Ireland, is that there are few people who should be considered to be unemployed who are 'hidden' in retirement statistics.

Table 7.3: Age Distribution of Retired Males in Northern Ireland

Age	Number Registered as Retired	%
< 55	397	-
55-59	1,697	2
60-64	6,190	8
65-69	22,210	29
70-74	19,788	26
> 75	26,410	34
All Ages	76,692	100

Source: 1991 Census of Population.
Notes Figures do not add to exactly 100 per cent due to rounding

7.4.2 Possible Explanations of Low Early Retirement in Northern Ireland

The relatively low incidence of early retirement in Northern Ireland was a surprising outcome of this research, and deserves further in-depth consideration. Nevertheless, a number of preliminary explanations might be given: firstly, during the economic restructuring which took place during the 1980s, many UK companies used early retirement packages to reduce the size of their workforces. On the basis of the 1984 Workplace Industrial Relations Survey, Casey (1992) has shown that small firms are much less likely to use early retirement as a way of 'downsizing' the workforce; for example, in workplaces in which downsizing occurred, 27 per cent of small firms (25-99 employees) used early retirement (as opposed to voluntary or compulsory redundancies), compared to around 80 per cent of large firms (500+ employees). A

significantly larger proportion of the workforce is employed in small firms in Northern Ireland compared to elsewhere in the UK (Table 7.6), and this might go some way to explaining the low incidence of early retirement. It might also be the case that the owner-managers of small firms may continue working until retirement age because of their commitment to the company which they own. Northern Ireland also has a significantly higher proportion of the workforce employed in agriculture; for such workers, particularly those working on family farms, the chances of early retirement might be relatively low because of their commitment to their farm and, perhaps, a less clear distinction between work and leisure. There is also some evidence to suggest that in Northern Ireland a certain work ethic prevails which is consistent with a relatively low incidence of early retirement. For example, Social Attitudes Survey data show that 56 per cent of manufacturing employees in Northern Ireland agreed with the statement 'work is a person's most important activity', compared to 35 per cent in Great Britain (Black, 1993).[55]

Table 7.6: Economic and Labour Market Characteristics in Different Parts of the UK : The Extent of Small Firms, Agricultural Employees and Managerial Workers

	Number of Small Businesses per 1,000 of Working Age Population, 1993	Proportion of Employees Employed in Agriculture, 1995
UK	43.4	2.3
England	43.7	2.0
Scotland	36.2	3.0
Wales	45.3	3.5
Northern Ireland	54.9	6.0

Notes: Figures on the number of small businesses are taken from Gudgin et al., 1995, p167, and are based on data from VAT Statistics UK Department of Employment and the Republic of Ireland Chief Inspector of Taxes.
Figures on the proportion of employees employed in agriculture are taken from *Regional Trends, 1996*. They are based on the Standard Industrial Classification for 1992, and relate to those employed in Division 1 'Agriculture, hunting, forestry & fishing'. Figures are derived from the Census of Employment, relate to September each year and exclude HM forces, homeworkers and private domestic servants.

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55 It was outlined above that registered sickness is an increasingly popular route to early retirement. It might be suspected that the lower incidence of early retirement in Northern Ireland would be reflected in, say, a relatively high proportion of 55-65 year olds on sickness-related benefits. This, however, is not the case, and the age profile of sickness claimants in Northern Ireland is exactly the same as for elsewhere in the UK (see Appendix 7A).

7.5 GOVERNMENT EMPLOYMENT AND TRAINING SCHEMES

7.5.1 Schemes as a Form of Hidden Unemployment

Most empirical studies have included those on government employment and training schemes in their measures of hidden unemployment (e.g. Millar, 1988, Green, 1995 and Beatty and Fothergill, 1996). However, the rationale for doing this is rarely discussed and, indeed, it is not unproblematic from a conceptual point of view. For example, it could be argued that schemes help people to enhance their human capital, and should no more be included in estimates of hidden unemployment than, for example, those who stay on in post-compulsory education. Although such arguments are intuitively appealing, government schemes retain certain features which distinguish them from other forms of post-compulsory education, and which suggest that participants should be included, at least in part, in estimates of hidden unemployment.

Firstly, schemes were developed explicitly as the main government response to high and rising youth and adult unemployment rates in the late 1970s. Although they nearly always contained a training element, their main purpose was to absorb excess labour in areas of high unemployment, and keep people off the unemployment register. Although it is likely that there was an element of this in the expansion of post-compulsory participation in education which took place over a the same period, it was never as explicit. Indeed, in Northern Ireland where the selective schooling system has been retained, a fairly clear distinction can be made between scheme participants and young people who stay on at school. In particular, the majority of young people who stay on at school are from the grammar stream, and it is well known that the vast majority of these gain good additional qualifications and proceed successfully into higher education or employment, in Northern Ireland or elsewhere. Secondly, the rhetoric of what schemes are supposed to do, in terms of both the training and employment elements, often does not match the reality of people's experiences on the schemes. For example, as shown in chapter 6 above, one half of participants on the Youth Training Programme in Northern Ireland in 1993 either got no qualifications, or else got qualifications which did not 'add value' to their existing

qualifications. Similarly, in a recent survey of long-term unemployed adults in West Belfast, nearly one half of those who had been on schemes said they thought it had 'no effect' on their chances of getting employment (Sheehan and Tomlinson, 1996). When asked the open-ended question of what should be done to reduce unemployment, nearly one third said 'no more schemes', and more than one half said 'more real jobs'.

7.5.2 Estimating the Schemes Component of Hidden Unemployment

A number of approaches can be adopted to incorporating scheme participants into the measures of hidden unemployment. Firstly, LFS based approaches, outlined above, have tended to include *all* of those participating on schemes at the time concerned. However, this fails to recognize the heterogeneity which exists between the different types of schemes and scheme participants. Secondly, therefore, estimates can be based on official data on the subsequent destinations of participants on each type of scheme in Northern Ireland. These involve including in the estimates of hidden unemployment only that proportion of those on schemes who entered unemployment immediately after leaving the scheme. With such people, participation on the scheme has had no real positive impact on their labour market outcomes, at least in the short term, and a process of 'churning' has effectively taken place whereby long-term unemployment is artificially converted into short term unemployment. Conversely, it would seem that many of those who were on schemes and found employment thereafter, have benefited to some extent from participation and, as such, their time on the scheme ought not to be considered to be a time of unemployment. Finally, an alternative method would involve dividing schemes into those which were explicitly 'make work' schemes, and those which were training schemes; participants on the former could be included in the estimates of hidden unemployment, and those on the latter excluded. This has the advantage of being consistent with the idea, implicit in other studies, that those who remain in full-time education post-16 should be excluded from the estimates of hidden unemployment. In Northern Ireland there is only one scheme (Action for Community Employment - ACE) which is officially described as an employment scheme; the others (Jobskills, Enterprise Ulster and Community Work Programme) are all described as training schemes (see T&EA, 1997). If only ACE participants were included, this would add around 3,000 males to

the estimates of hidden unemployment. However, this method assumes that the formal description of schemes accurately reflects the nature and content of the schemes. The reality is, however, that there is often a discrepancy between the official aims and objectives of schemes and the experience of participants 'on the ground'. For example, the most recent scheme to be introduced to Northern Ireland is the Community Work Programme (introduced in 1995). Although this is formally a training programme (T&EA, 1997), it has many features of an employment programme. In particular, it was developed as a response to the fact that the one official employment scheme in Northern Ireland (ACE) was not impacting on some key groups of the long term unemployed (see Sheehan and Tomlinson, 1996).

7.5.3 Main Findings

In 1996 there were 14,000 male participants on employment and training schemes in Northern Ireland (Table 7.5). This represents 20.4 per cent of male claimants and 3.3 per cent of the male economically active population. Official data sources suggest that, on average, around three fifths of participants on employment and training schemes in Northern Ireland end up unemployed after their time on the scheme has ended.[56] Including only these in the estimates of hidden unemployment, suggests that around 8,000 participants on schemes in Northern Ireland can be considered to be part of the hidden unemployed. This represents 11.8 per cent of claimants and 1.9 per cent of the economically active. If only those on schemes officially described as employment schemes are included (i.e. ACE), the figures are much lower at around 3,000 people, corresponding to 4 per cent of claimants.

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[56] Details of the inflow rates to unemployment amongst participants on each different type of scheme in Northern Ireland are given in Appendix 7A.

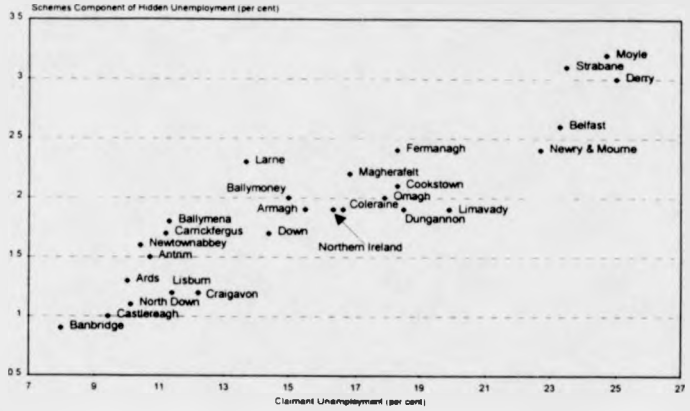
Table 7.5: The Schemes Component of Hidden Unemployment (Northern Ireland Estimates for 1996)

The Schemes Component of Hidden Unemployment	Including all on schemes	Including those on schemes who enter unemployment after scheme	Including only employment schemes
- total number	14,000	8,000	3,000
- as proportion of claimants	20.4	11.8	4.4
- as proportion of economically active	3.3	1.9	0.07
- as proportion of post-16 population	2.3	1.4	0.05

Source: NIERC

There is a strong positive correlation between claimant unemployment and the schemes component of hidden unemployment amongst the Local Government Districts in Northern Ireland (Figure 7.6). There is a sense in which this is encouraging because, as part of the 'Targeting Social Need' policy, an important aim of policy in Northern Ireland has been to target the provision of employment and training schemes towards those areas of greatest economic and social deprivation (see, for example, T&EA, 1994). However, it is important to note that this positive correlation also indicates that the true extent of spatial disparities in unemployment are, to some extent, masked by participation on government schemes. In other words, in the absence of employment and training schemes, differences in unemployment between local areas in Northern Ireland would be even higher than official figures suggest.

Figure 7.6: The Schemes Component of Hidden Male Unemployment and Registered Male Unemployment (Northern Ireland Local Government Districts)



Source NIERC

Notes Figures are expressed as a per cent of the economically active population. Estimates are based on the second method, discussed above (i.e. using information on post-scheme destinations).

7.6 UNEMPLOYED TEENAGERS

The profile of young people aged 16 and 17 who are not in full-time education, training or employment has been raised recently by studies conducted in South Glamorgan (Rees et al., 1995) and Wearside (Wilkinson, 1995). These young people, sometimes referred to as being in 'Status 0',[57] have been ineligible for benefits related to unemployment since the 1988 Social Security Act, and hence are excluded from the claimant count. As a marginal group, they may also be underrepresented in surveys such as the Youth Cohort Study conducted in England and Wales because such people have relatively low response rates to postal surveys. Official data from administrative sources and household surveys suggest that there are between 1,000 and 1,400 unemployed 16 and 17 year old males in Northern Ireland at any one time. This represents between 4 and 6 per cent of the respective population cohorts. Census figures show that in the urban areas of Belfast and Derry, along with a number of the more rural areas in the west of Northern Ireland, the proportion of young people unemployed is relatively high at between 8 and 10 per cent. At a more disaggregated level, there are more than twenty wards in Northern Ireland, many of which are located in inner city areas, in which 15 per cent or more of young people are unemployed.[58]

A recent study has investigated the nature and extent of the 'Status 0' problem in Northern Ireland (Armstrong, 1998a). As part of this research a new survey was conducted which tracked the activities of a cohort of young people over a two year period (1993-95), from the ages of 16 to 18. This was done because 'snapshot' estimates of youth unemployment, such as those referred to above, are limited because they cannot account for 'dynamic' aspects of unemployment such as inflows,

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[57] The term 'Status 0' was originally used to refer to young people not in education, training or employment in South Glamorgan (see, for example, Rees et al., 1995). It has been adopted in some national press articles relating to youth unemployment and inactivity, e.g. 'The Status Zero Generation'. *The Daily Telegraph*, 13 October, 1995, and it has been used recently in the above-mentioned research project in Northern Ireland.

[58] Of course, the absolute numbers involved are relatively small. For example, on average there are 30 unemployed 16 year old males in each of the Local Government Districts.

outflows and the duration of spells. When these were investigated in detail, it was found that the main problem in Northern Ireland was that a significant minority of young people in Northern Ireland entered unemployment after leaving school, and stayed there for long periods of time. In particular, 7 per cent of the male cohort, corresponding to around 2,000 16 and 17 year olds, experienced a long spell of unemployment between the ages of 16 and 18. These were the most marginalised young people who had effectively 'dropped out' from mainstream education and training provision and they can be added to the estimates of hidden unemployment.

7.7 CONCLUSION

Taking account of the 'hidden' component of male unemployment adds around 25,500 people to the official figures (Table 7.7). This represents around 6 per cent of the economically active population and around 38 per cent of officially registered unemployed claimants. On account of some assumptions built into the methodology, these figures represent a conservative estimate of the extent of hidden male unemployment. The majority of the hidden unemployed are men who are registered as long-term sick but who, under plausible assumptions, can be considered to be unemployed and available for work. Most of the rest are those who are removed from the unemployment register because they are participating on government schemes and who, when the scheme has finished, re-enter official unemployment. Interestingly, it was found that early retirement was not an important source of hidden unemployment in Northern Ireland.

Table 7.7: Male Hidden Unemployment in Northern Ireland

	Number	Per cent of Economically active	Per cent of claimants
Total Number of Unemployed Claimants (February 1996)	67775	16.1	100
Components of Hidden Unemployment			
Long-Term Sickness	15,500	3.7	22.9
Government Schemes	8,000	1.9	11.8
Early Retirement	-	-	-
Unemployed Teenagers	2,000	0.5	3.0
All Hidden Unemployment	25,500	6.1	37.7

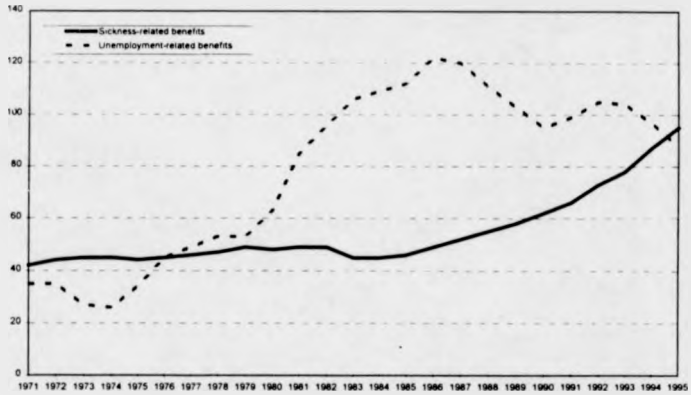
Source NIERC

Finally, it is worth placing these results in the context of the debates which, as outlined above, are currently on-going about the impact of the Job Seekers Allowance (JSA), introduced in October 1996. Until September 1996, unemployment in Northern Ireland had been on a gently rising trend, increasing by around 100 people each month. In October the numbers unemployed fell by 3,400 and November's fall of 6,300 was the largest ever recorded in a single month. A central element of the JSA involved a tightening of the eligibility criteria for claims of unemployment-related benefits. For example, claimants must provide evidence of their job search

activities, and must claim in person rather than receive benefits by post. It seems likely that at least part of the recent falls in unemployment can be explained in terms of people shifting claims from unemployment to sickness-related benefits. Recent data on the destinations of leavers from the claimant count provide some evidence which is broadly consistent with such explanations. For example, the proportion of leavers from the claimant count who moved on to other forms of benefit, increased from 9 per cent in the last quarter of 1995 to 15 per cent in the last quarter of 1996 (the first three months of the JSA). What is clear is that the recent falls in unemployment have not been accompanied by a corresponding improvement in job creation, and thus do not represent a genuine improvement in labour market conditions. Although the present research was conceived and conducted before the full impact of the JSA became apparent, it would seem that the introduction of JSA has brought the whole issue of hidden unemployment to the forefront of recent public debate, and has reinforced the need to be cautious about official figures on unemployment.

APPENDIX 7A: UNEMPLOYMENT, SICKNESS AND GOVERNMENT SCHEMES

Claimants of Unemployment and Sickness-Related Benefits in Northern Ireland: 1971-95



Source: Northern Ireland Annual Abstract of Statistics, various issues.
Notes: Figures for sickness related benefits relate to insured persons absent from work owing to sickness and invalidity

Government Employment and Training Schemes in Northern Ireland: Participation and Subsequent Destinations

Scheme	Average Number of Male Participants	Proportion of Participants Subsequently Entering Unemployment
Action for Community Employment (ACE)	2970	77
Enterprise Ulster (EU)	590	63
YTP / Jobskills - young people	6820	50
- adults	2970	56
Community Work Programme (CWP)	520	55
ALL SCHEMES	14,000	62

Average Number of Participants

Figures for 'All Schemes' are rounded to the nearest thousand. Figures for EU and CWP are average figures for the financial year 1995/96. Figures for ACE relate to November 1996 and exclude a small number for whom information on location was unavailable. Figures for Jobskills/YTP/JTP relate to March 1996.

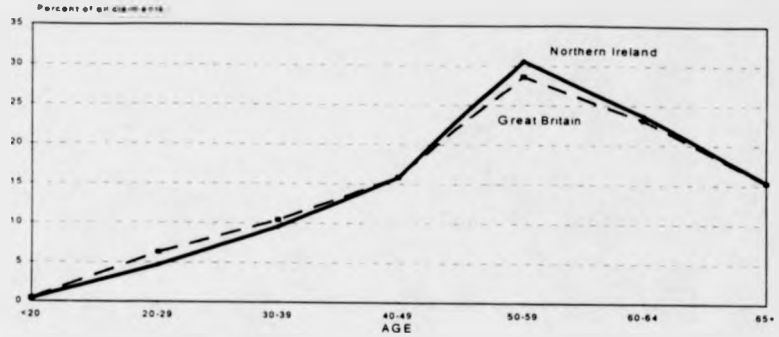
Subsequent Destinations of Participants

The destination 'unemployment' is broadly defined in terms of not being in employment, or further education / training. It does not specifically relate to 'claimant' unemployment. The information on ACE and CWP is based on a sub-sample of leavers. For ACE, the sample size is around 18% of the population, and for the CWP it represents around 6% of the population. Figures for EU and Jobskills/YTP/JTP are based on administrative information collected for all programme participants. Figures for Jobskills/YTP/JTP relate to the destinations of participants on YTP (for young people) and JTP (for adults) for the year 1994/95, the last year when these programmes were in operation.

Comparability of Data for Different Schemes

Note that these figures represent the best possible estimates based on existing sources of information. Care should be taken when comparing the figures for the different types of schemes. For example, figures on ACE destinations are based on a sample survey in which there was a large proportion of people in an 'unknown' destination (51 of the 71 percentage points). This contrasts to the figures for Enterprise Ulster which are based on administrative records and for which, probably on account of the relatively small number of participants, the destinations of all participants could be accounted for with a reasonable degree of accuracy.

The Age Profile of Male Claimants of Sickness-Related Benefits: 1995



Source: Annual Abstract of Statistics, 1996 Edition and Department of Social Security (NI)

CHAPTER 8

CONCLUSION

8.1 SUMMARY OF MAIN FINDINGS

This thesis contains four main analytical chapters. The first three examine some specific issues relating to the school-to-work transition in Northern Ireland, using an econometric analysis of survey data. The main findings of these chapters are as follows: firstly, decisions about destinations post-16 are significantly influenced by school performance. In particular, young people from schools which perform well in terms of overall examination performance and attendance rates, are more likely to remain in full-time education, *ceteris paribus*. This was interpreted in terms of the influence of different aspects of 'school culture', a concept which has received considerable attention recently in the educational literature. The analysis found that it was best to model decisions post-16 in terms of the four main destinations of young people, namely school, Further Education, employment and vocational training. This is consistent with recent developments in the academic literature, and it goes beyond the more traditional approach of modelling the simple binary choice between full-time education and labour market entry. Secondly, psychometric tests which are used as part of the careers guidance process in schools, do not significantly affect young people's experiences of unemployment post-16. This was contrary to prior expectations, and it can be attributed to aspects of the administration of the tests in Northern Ireland, which in many cases fall short of recommended guidelines. These findings are important because psychometric tests continue to be used extensively throughout the UK. The research suggests that if they are not properly administered, practitioners run the risk of wasting scarce careers guidance resources. Thirdly, most young people in Northern Ireland who left school at the age of 16 in 1993, entered either Further Education (FE) colleges or the Youth Training Programme (YTP). The raw figures show that young people at FE colleges are more likely to get additional 'value added' qualifications. However, the econometric analysis showed that after controlling for a range of relevant factors, including sample selection effects, most of

the differences between young people at FE and those on YTP were statistically insignificant. This suggests that there is little associated with participation in YTP or FE *per se*, which contributes to young people not getting additional qualifications. Rather, there are some factors common to both, such as a lack of school based qualifications, which prevent young people at both FE and YTP improving their human capital.

The fourth analytical chapter examined the nature and extent of hidden unemployment amongst adult males in Northern Ireland. In contrast to previous chapters, this was non-econometric and was based mainly on a descriptive analysis of data from the 1991 Census of Population and the Labour Force Survey. The study found that there are large numbers of jobless men who can be considered under plausible definitions to be unemployed, but who do not appear in official unemployment figures. Most of these are registered as long-term sick, and the remainder are on government employment or training programmes. The research also found that official figures tend to mask some of the differences in unemployment between different areas in Northern Ireland. These findings are important because understanding the true extent of joblessness is more than simply an academic exercise. Rather, if policy makers are to address successfully the problem of unemployment in Northern Ireland, then they need to know how many people fall into the jobless category, as well as how the extent of the problem varies between different localities. The results of the research show that official figures are limited, to some extent, on both accounts

8.2 GENERAL THEMES EMERGING FROM THE ANALYSIS

8.2.1 The Importance of School Based Qualifications

One consistent feature of all the micro analysis has been that GCSE qualifications gained at school have a strong influence on subsequent educational and labour market outcomes. For example, in the models of youth unemployment presented in Chapter 5, the higher the number of GCSEs gained at school, the lower were the chances of the young people experiencing unemployment and long term unemployment between the ages of 16 and 18. Similarly, in Chapter 6 it was found that young people who had gained 5 or more GCSEs at school, were much more likely to gain additional vocational qualifications in FE or YTP. These findings are not surprising. Young people who leave compulsory education with no or low levels of qualifications have little chance of being recruited by employers who frequently use educational attainment as a screening device to select people for interview. They are also more difficult and more costly to train, because they have a relatively weak cognitive foundation upon which the training can be based.

These findings are important from a policy point of view. In particular, they suggest that many of the problems which young people face during the school-to-work transition, can be traced to problems which they have encountered earlier at school. From a policy point of view, therefore, one of the key ways in which to facilitate a successful progression from school into the labour market is to ensure that all young people leave secondary education with at least a minimum threshold level of education. The research suggests that two themes might be used to guide policy makers in doing this: firstly, resources ought to be carefully targeted towards particular groups of young people. For example, official figures show that of the approximately 1,000 young people who left secondary education in Northern Ireland with no formal qualifications in 1992/93, around one tenth came from only three secondary schools in the Belfast area (DENI, 1994b). Similarly, the dummy variables for Belfast and Derry have been highly significant in some of the model results presented above, suggesting the existence of a strong 'urban effect' on youth transitions. The existence of such correlations means that targeting educational

resources can, in principle, be done with a reasonable degree of efficiency. Secondly, although the main aim of school-based interventions is to ensure a minimum threshold level of education at the age of 16, preventative measures ought to targeted towards both the primary and secondary sectors and might also include pre-school activities. For example, in the recent OECD Jobs Study (OECD, 1994), international evidence was presented which showed that pre-school activities have an important influence on the subsequent performance of young people at primary and secondary levels. Thus, policies aimed at reducing under-achievement at school ought to encompass a range of different interventions which are implemented from the earliest stages in the young person's educational career up until the school leaving age.

8.2.2 The Role of Family Background Effects

The raw correlations between the standard family background variables, and the various educational and labour market outcome variables, were all as expected. What was surprising, however, was that in the econometric models which controlled for a range of related factors, most of these background variables were statistically insignificant. Rather, what seemed to be more significant in many of the models was the variable which indicated whether or not the young person was living with one or both parents. For example, young people who were living with only one parent were much more likely to experience unemployment or long-term unemployment between the ages of 16 and 18 (Chapter 5). These results are consistent with those from a series of in-depth qualitative interviews, conducted as part of the original study into youth unemployment (Loudon et al., 1997). The qualitative interviews found that many young people who had experienced unemployment, spoke of factors such as tensions in the home and difficulties between parents, as influencing the success with which they were able to progress through formal schooling or training. This is important because it suggests that the factors which have an important influence on youth transitions, in some cases go beyond those which economists have tended to believe are important, based either on their priors or else on economic theory. This reinforces the points made by Malinvaud (1991) and Stiglitz (1991), discussed briefly in Chapter 1, that the desire amongst some for clear lines of demarcation between social sciences may be misplaced; just as economics has much to teach other social sciences, particularly with respect to estimation techniques, so also it has much to

learn, particularly in terms of which factors to include in econometric models, and how to interpret the results.

8.3 SUGGESTED DIRECTIONS FOR FUTURE RESEARCH

8.3.1 Conducting Northern Irish Youth Cohort Surveys

The collection of survey data relating to young people in the Northern Ireland labour market has tended to be done on a fairly *ad hoc* basis. For example, the survey which has been used extensively in this thesis, was originally conducted as part of a study into the nature and extent of youth unemployment in Northern Ireland. Similarly, the other main micro survey of young people (the Secondary Education Leavers Survey), was originally conducted in order to identify the main issues which would be encountered if a survey like the Youth Cohort Study of England and Wales were to be conducted on a regular basis in Northern Ireland (see Shuttleworth, 1993 for a discussion). Although such surveys have provided rich information on young people in Northern Ireland, they have been conducted in response to particular concerns of policy makers at the time. This is in contrast to the situation elsewhere in the United Kingdom and in the Republic of Ireland, where such surveys are conducted systematically, using standard definitions, on an annual or bi-annual basis. Doing this means that researchers are able investigate how the fortunes of successive cohorts of young people change over time. It also means that the effects of particular policy changes, along with broader labour market changes facing young people, can be examined. From a research point of view, therefore, it would be highly desirable if the Northern Ireland surveys were to be conducted on a more regular and systematic basis. Precisely how this can be done is currently being investigated at NIERC in a research project jointly commissioned by the Department of Education for Northern Ireland and the Training and Employment Agency. The main aims of this project are (a) to provide an overview and assessment of existing administrative and survey-based sources of information on youth transitions in Northern Ireland, and (b) to make recommendations about how the existing information systems might be improved. The results of this project, due in Spring 1998, ought to provide clear guidelines about how future surveys in Northern Ireland might be conducted so as to provide regular, up-to-date and high quality information on Northern Ireland young people.

8.3.2 Following-up Young People in the Status 0 Survey

One immediate step which should be seriously considered, would involve conducting a further follow-up of the young people in the survey used in this thesis. The survey contained work history information for a two year period between 1993 and 1995, when the young people were between the crucial ages of 16 and 18. This work history element to the data meant that the analysis could go beyond looking at standard snapshots of educational and economic activity, and could examine 'dynamic' aspects of unemployment such as inflows, outflows and the duration of spells. However, the data were unable to say anything about how the young people fared in education, training or the labour market after the age of 18. This meant that some important economic questions had to be left unanswered. Two examples can be given of such questions: firstly, it would be interesting to investigate whether or not the experience of unemployment amongst young people continues from their late teens into their early twenties. In Chapter 5 above, for example, unemployment was investigated in terms of three binary indicators, namely (a) long-term unemployment (i.e. spells which lasted for six months or more), (b) any spell of unemployment, and (c) unemployment at the end of the sample period (Spring 1995). It would be interesting to know how accurate these indicators of unemployment are as indicators of the experience of unemployment amongst the young people as they progress into their early twenties. *A priori*, we would expect the experience of unemployment to continue and, if so, this has important policy implications. Secondly, if the survey were to be followed up, an investigation could be conducted of the longer term labour market impact of participation in education and training. In its current format, the data can only be used to investigate the extent of 'early leaving' amongst young people who enter FE and YTP after leaving school at age 16. This contrasts with the more conventional approach in the economic literature, of investigating how wages or employment probabilities are affected by the completion of a period of further education or vocational training; this is typically assessed when the young people are in their early or mid twenties. If the young people in the present survey were to be followed up, say, in the Spring of 1998, then they would mostly be aged 21, and this kind of analysis would be emanently possible. These, then are two important questions which could be addressed if the Status 0 survey were to be followed up in the near future.

8.3.3 Investigating the Characteristics of the Hidden Unemployed

One reason why understanding the extent of hidden unemployment is important relates to the investment decisions of companies. In particular, if a company is seeking to locate in a particular area, then it needs to know how much labour is available in that area. The research presented in Chapter 7 showed that official figures on male unemployment are likely to be a relatively poor guide to this. Other research conducted at NIERC has shown that there is a greater problem for women, mainly because of the large numbers of jobless women who, for a variety of reasons, are not eligible to claim unemployment-related benefits (Armstrong, 1997f). However, knowing *how much* labour is available in a particular local area is only one part of the problem. It is also essential to know *what type* of labour is available. For example, there may be a large hidden female labour supply in a particular area, and many of these women may be caring for young children. If this is the case, then if any inward investment is to be successful in attracting these women into the new jobs, the provision of adequate childcare facilities is an important pre-requisite. Likewise, if large numbers of hidden unemployed women have lost contact with the formal labour market, then any vacancies for new jobs will need to be advertised through non-formal channels (e.g. using radio advertising). A research project is currently underway, commissioned by the Equal Opportunities Commission for Northern Ireland and conducted by NIERC, which will investigate the characteristics of the hidden unemployed using figures from the Northern Ireland Labour Force Survey. The results of this research will be available in Spring 1998.

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